



CUMBERNAULD ACADEMY

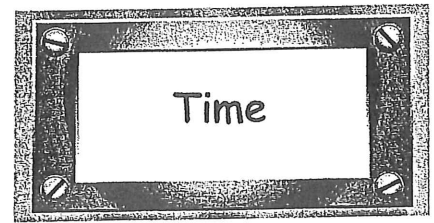
Faculty of Mathematics & Numeracy



2nd / 3rd Level

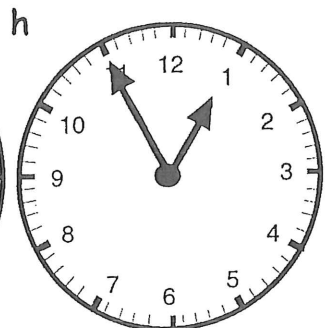
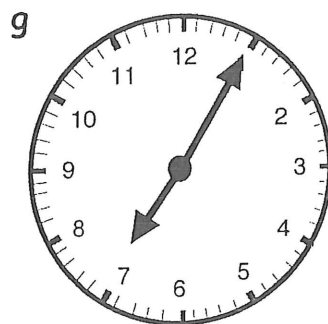
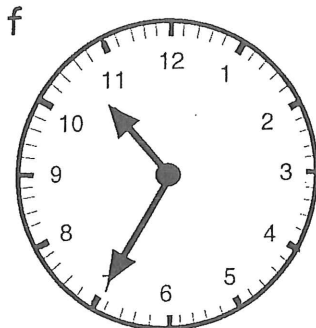
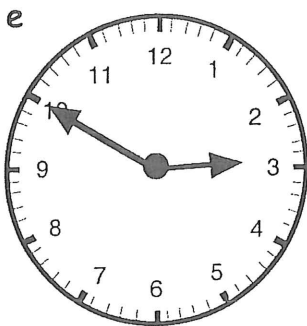
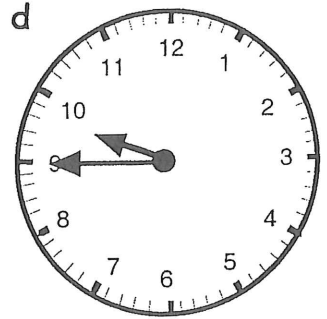
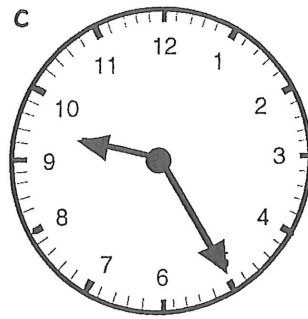
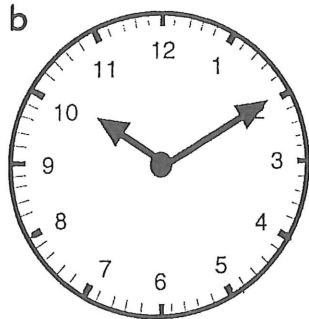
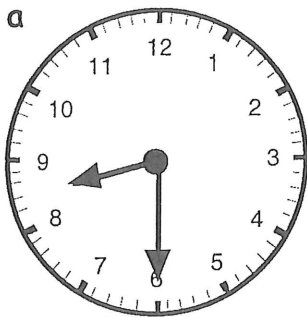
Block 2 - homework booklet

Chapter 4

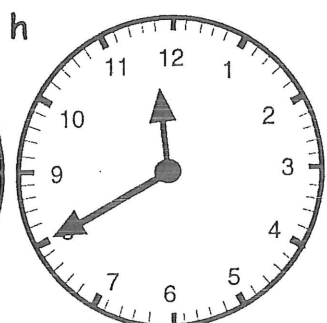
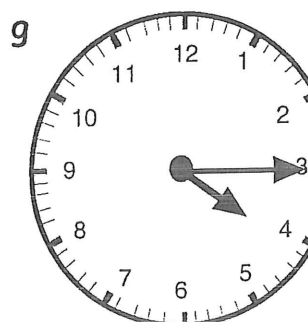
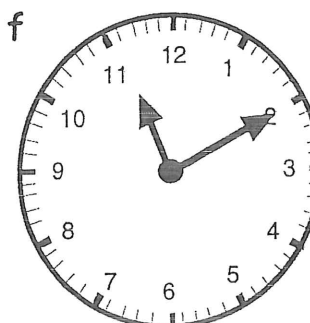
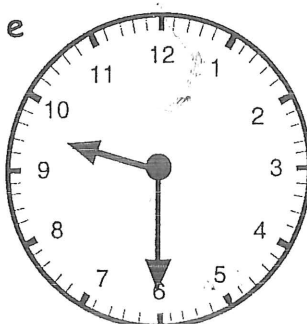
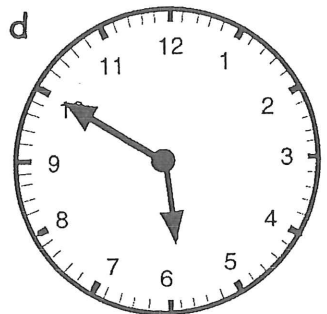
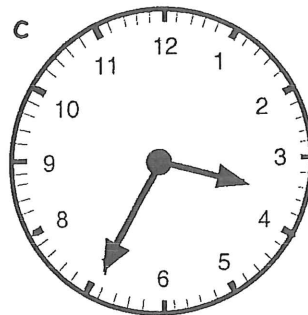
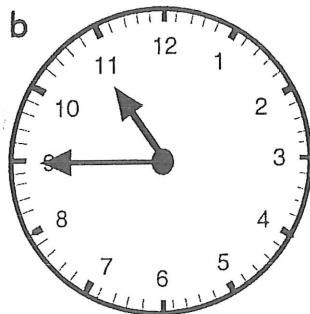
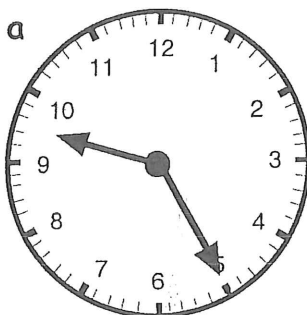


Exercise 1

1. Write down the times on these clock faces :-



2. Write down the times on these clock faces in 2 ways :-
Example - "3-20" or "twenty past three."

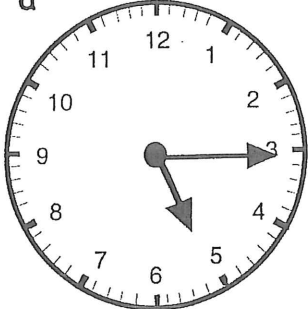
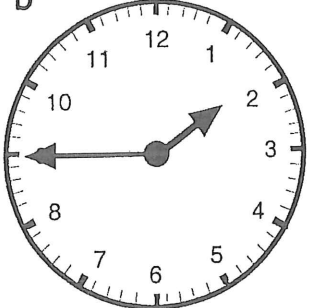
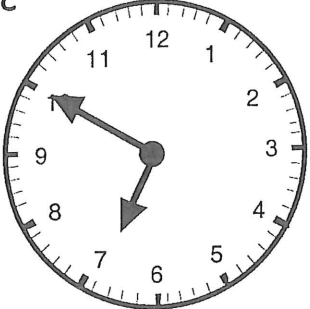
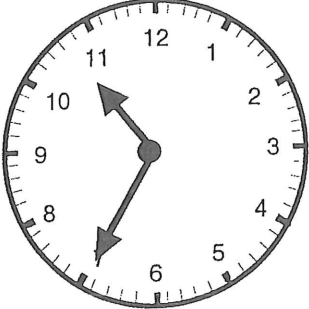


Exercise 2

1. Write each of the following digital clock times in words :-

a  b  c  d 

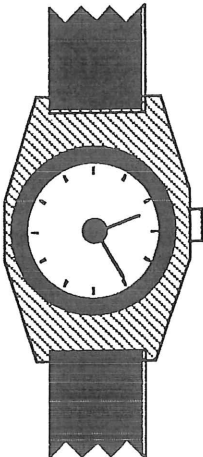
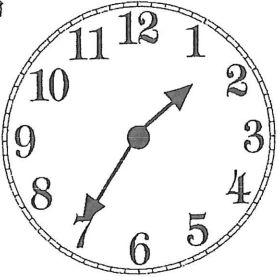
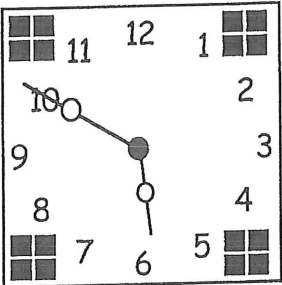
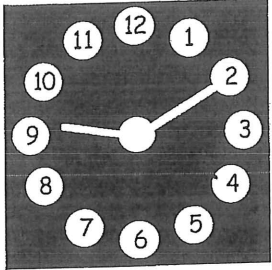
2. Draw a small digital clock face for each of these.
Write each of the times in digital form :-

a  b  c  d 

e $\frac{1}{2}$ past 8 f 20 to 12 g 5 to 9 h ten to four

3. Write each of the following watch and clock times in two ways :-

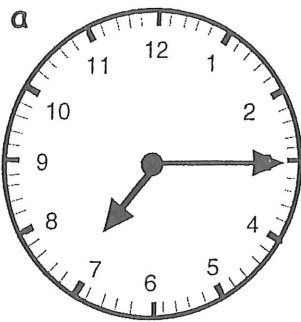
Example :- "twenty five past four or 4:25"

a  b  c  d 

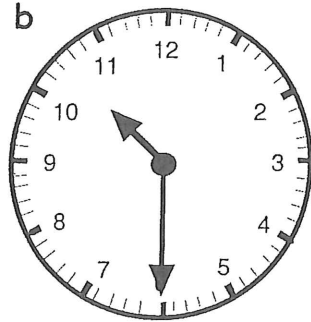
Exercise 3

1. Write each of the following times in 2 ways, using am or pm :-

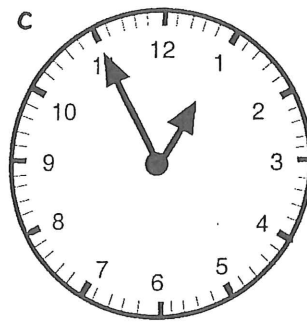
Example :- "half past two in the afternoon or 2.30 pm"



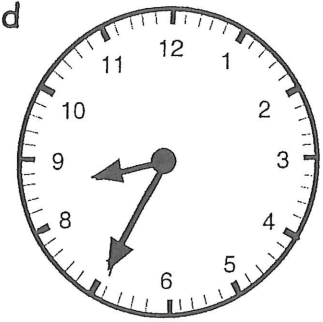
in the morning



in the evening



lunchtime



get on bus to go to school



watch movie before bed



get home from school



Gran comes for lunch on a Sunday



football match kicks off

2. REWRITE Ben's story about last Sunday, using am/pm style :-

"I got up at quarter past nine.

My dad ran me to golf at twenty to ten.

He dropped my mum at church on the way, at twenty-five to eleven.

I started playing at five to eleven and finished at ten past three.

Dad picked me up at half past three.

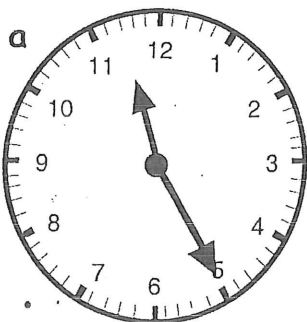
We were home for ten to four.

I was starving - I looked forward to dinner at twenty past five!"

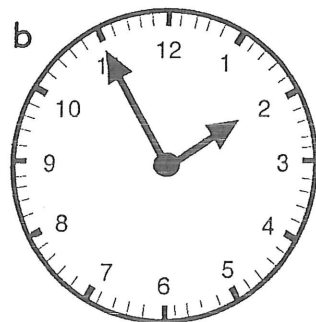


3. Write each of the following times out fully :-

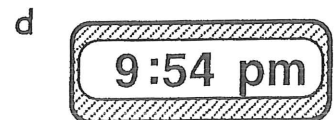
(use "in the morning", "in the afternoon" or "at night")



am



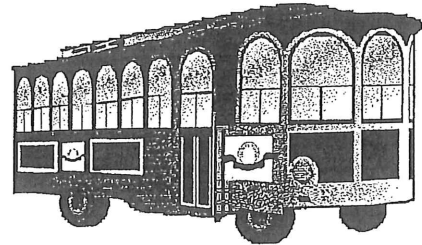
pm



4. Make a neat **COPY** of this trolley bus timetable.

Denton	→	Ashley	→	Sutton	→	Kolly	→	Renton
9·50 am		11·10 am			2·25 pm	

- a At what time was the trolley bus at Denton ?
- b When did it stop at Ashley ?
- c The trolley bus arrived at Sutton at 25 to 2 in the afternoon.
Write this (using am/pm) in your timetable.
- d Write out in words when the trolley bus was at Kolly.
- e It's journey ended at Renton at twenty five to four in the afternoon.
Write this in your timetable (using am/pm).



5. Jane was looking at Channel 7's T.V. programmes for Thursday.

- a Dragonzee is on at 2:10 (ten past 2).
Do you think this is in the afternoon or early morning ?
- b International Bowls is on at 25 to 3 in the afternoon.
Write out the times of these two programmes fully in a similar way :-
(i) Spiderman
(ii) Tea-Time News



CHANNEL 7

2:10	Dragonzee (R)
2:35	International Bowls
3:00	Catchword (game show)
3:25	Spiderhouse (film)
5:05	Emmerdome
5:40	Tea-Time News
6:10	Local Newsbeat
6:45	Top of the Charts
7:15	Today's Sport
7:35	The Ben
8:20	News Extra
8:30	Shrook 111 (film)

- c Jane was watching Channel 7 at five to 8.
Which programme must she have been watching ?
- d Which programmes are showing on Channel 7 at :-
(i) 5:55 pm (ii) 6:25 pm (iii) $\frac{1}{4}$ to 9 at night ?

Exercise 4

1. How many minutes is it from :-

- a 8:30 to 8:45 b 10:05 to 10:40 c 3:55 to 4:10
 d 1:15 to 1:32 e 11:35 to 11:51 f 6:19 to 6:48 ?

2. Nick took a break from studying.

He rested from five to eight till half past eight.

How long did Nick's break last ?



3. Write down the time which is :-

- a 15 minutes after 1:40 pm b 25 minutes after 7:35 am
 c $\frac{1}{4}$ of an hour before 11:25 am d 25 minutes before 4:55 pm

4. Part of a bus timetable from Renfrew to Largs is shown.

a Bus 1 leaves Renfrew.

Where does it first stop at ?

b How long did Bus 1 take from :-

(i) Renfrew to Erskine ?

(ii) Skelmorlie to Largs ?

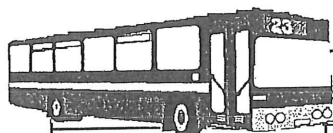
(iii) Port Glasgow to Wemyss Bay ?

c How long did Bus 2 take from :-

(i) Erskine to Port Glasgow ?

(ii) Renfrew to Gourock ?

(iii) Gourock to Largs ?



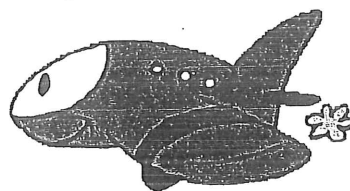
	BUS 1	BUS 2
Renfrew	8:55	10:05
Erskine	9:15	10:20
Langbank	9:30	10:40
Port Glasgow	9:40	10:45
Gourock	9:55	11:00
Wemyss Bay	10:10	11:15
Skelmorlie	10:15	11:20
Largs	10:20	11:25

5. a It is now 5:10 pm. What was the time half an hour ago ?

b My plane journey took exactly 3 hours.

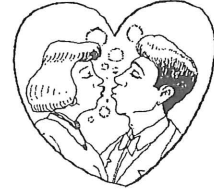
I arrived at my destination at 4:17 pm.

At what time must my plane have left ?

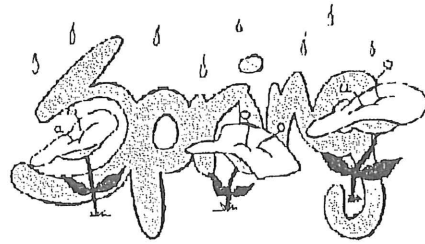


Exercise 5

1. a How many days are there in a "normal" year ?
 b How many days are there in a leap year ?
 c How many weeks are there in a year ?
 d On what **date** in the year is :-
 (i) Christmas day (ii) Valentine's day (iii) Bonfire night ?



2. a What is the **5th** month of the year ?
 b What is the **2nd last** month in the year ?
 c Which month comes just **after** April ?
 d Which month comes just **before** October ?



3. How many days are there in the month of :-
 a March b February c May d June
 e July f September g October h November ?
4. What is the :-
 a 2nd month b 6th month c 9th month d 10th month ?
5. The 5th of April 2003 can be written as :-

05/04/03.

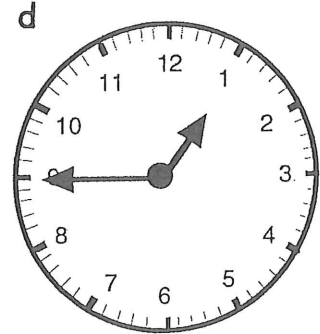
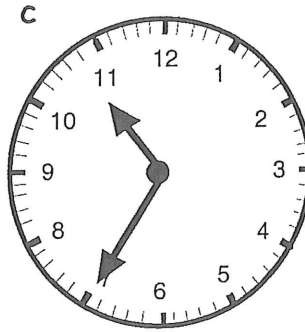
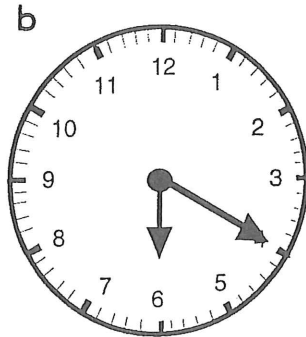
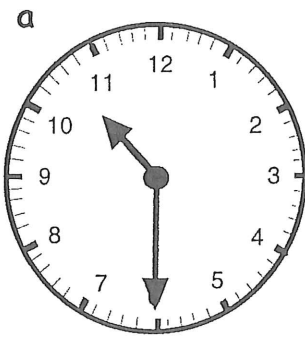
Write each of these dates in the same way :-

- a 29th February 2004 b 15th May 2001
- c 9th August 1999 d 1st January 2005
6. Write out the following dates **fully** in words :-
 a 16:06:97 b 03:11:03.



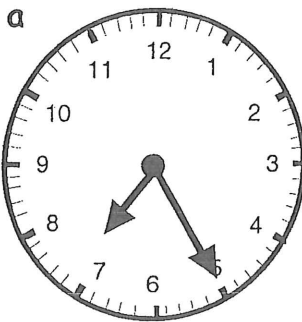
Revision Exercise

1. Write down the times on these clock faces in 2 ways :- for example - "5·10" or "ten past five."

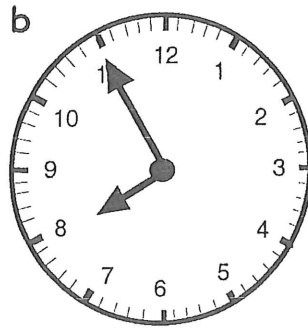


2. Draw a small digital clock face for each of the clocks in Question 1. Write each of the times in digital form.

3. Write each of the following times in 2 ways, using am or pm :-



in the morning



in the evening

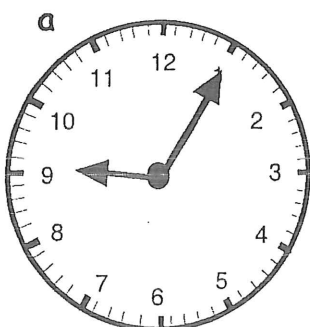


home from school

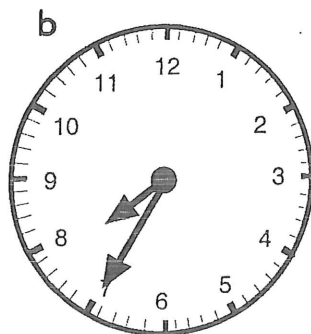


have evening meal

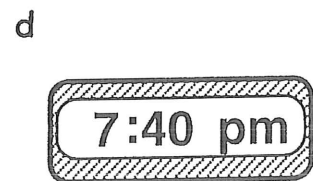
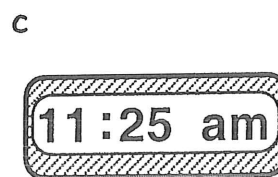
4. Write each of the following times out fully :-
(use "in the morning", "in the afternoon" or "at night")



a m



p m



CHANNEL 8

5. Jane was looking at Channel 8's T.V. programmes for Friday.

- a **Mockey Moose** is on at **2:05** (five past 2).

Do you think this is in the afternoon or early morning?

- b **International Cricket** is on at **half past two** in the afternoon. Write out the times of these two programmes fully in a similar way :-

- (i) **Lucky Dip**
(ii) **Westenders**

- c Jane was watching Channel 8 at **5 past 8**.

Which programme must she have been watching?

- d Which programmes are showing on Channel 8 at :-

- (i) 5 pm (ii) 7:10 pm (iii) 5 to 9 at night ?

2:05	Mockey Moose (R)
2:30	International Cricket
3:00	Lucky Dip (game show)
3:25	Dogball (film)
6:05	Westenders
6:35	Tea-Time News
6:50	Local Newstime
7:00	Millionaire !
7:25	Today's Sport
7:40	Noisy Witness
8:35	News Update
8:50	Alfie (film)

6. How many minutes is it from :-

- a 7:30 to 7:45 b 10:15 to 10:50 c 5:45 to 6:05 ?

7. It is now **2:20 pm**. What was the time half an hour ago ?

8. How many :-

- a days in a week b days in a year
c weeks in a year d days in August ?

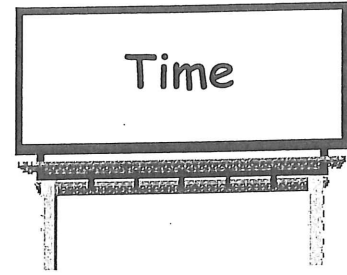
9. Write out this date in full :- **07:09:04**.

10. Write **23rd September 1918** using 6 digits.

11. a What is the **6th** month of the year ? How many days are in this month ?

b What is the **3rd last** month in the year ? How many days are in this month ?

Chapter 4



Exercise 1

1. Change the following 12 hour clock times to 24 hour clock times :-

- | | | |
|--------------|--------------|---------------------------------|
| (a) 9:30 am | (b) 3:40 am | (c) 5 am |
| (d) 2:40 pm | (e) 5:35 pm | (f) 10 at night |
| (g) 7:45 am | (h) 9:55 pm | (i) 10 past 2 in the morning |
| (j) 8:43 am | (k) noon | (l) 12:25 am |
| (m) 12:40 pm | (n) 11:20 pm | (o) 3:35 am |
| (p) 9:10 pm | (q) 10:25 pm | (r) twenty past eleven at night |

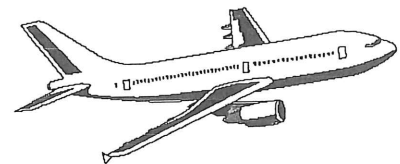
2. Change the following 24 hour clock times to 12 hour clock times :-

- | | | |
|----------|----------|----------|
| (a) 0530 | (b) 1050 | (c) 0945 |
| (d) 1745 | (e) 1940 | (f) 2325 |
| (g) 0140 | (h) 1645 | (i) 2020 |
| (j) 2112 | (k) 1200 | (l) 0350 |
| (m) 0245 | (n) 1425 | (o) 2145 |
| (p) 2305 | (q) 0010 | (r) 0707 |

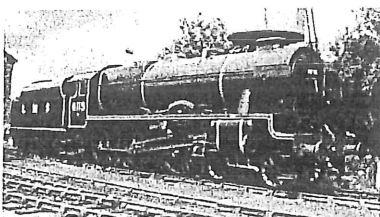


3. Britannia flight BY515N left Tenerife Airport at 11:45 pm and landed at Edinburgh at 4:15 am the following day.

- (a) Write these times in 24 hour form.
 (b) How long was the journey ?



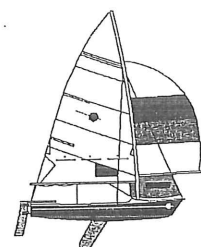
4.



The Royal Scot train left Glasgow Central at 7:55 am and arrived at Brighton at 3:05 pm.

- (a) Write these times in 24 hour form.
 (b) How long did the journey take ?

5. Howard set sail in his yacht on Wednesday at 10:30 pm. He reckoned he would not see land for another 2 days and 2 hours. On which day did Howard expect to see land and what time would it then be ?



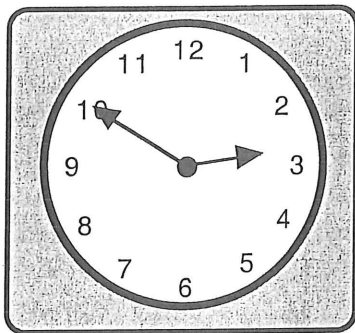
Exercise 2

1. How long is it from :- (show how you used "counting on" to obtain your answer)
- | | |
|------------------------|-------------------------------|
| (a) 4:05 pm to 7:05 pm | (b) 7 am to 11:30 am |
| (c) midday to 5:30 pm | (d) 8:30 pm to 11:35 pm |
| (e) 7:55 am to 9:25 am | (f) 2:40 am to 8:10 am |
| (g) 0820 to 1115 | (h) 1955 to 2120 |
| (i) 1750 to 2105 | (j) 2240 to 0300 (next day) ? |

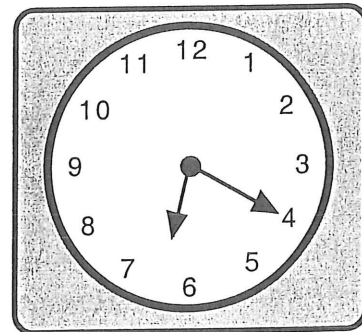


2. The film "Mission Possible" started at 2015 and lasted for 1 hour 55 minutes. At what time did it finish ?
3. The two clocks show the times when a kiddies' magic show is due to start.

1st Performance



2nd Performance



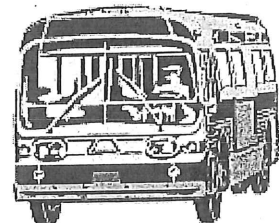
How long is it between the starting times ?

4.



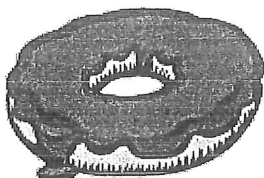
Joe set off on the Auchtentiber Marathon at 9:35 am. He arrived at the finish line at 1:10 pm. How long had Joe taken to run the marathon ?

5. An old single-deck bus runs on a circular route around Millport. It leaves the pier at 0910 and passes it again at 0945.



- (a) Calculate the time taken for 1 circuit of Millport.
 (b) When should the bus next pass the pier ?
 (c) How many complete circuits can it make between 8 am and 4 pm ?

6.

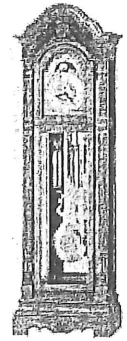


There's a village doughnut-eating competition to see which local contestant can eat 50 doughnuts the quickest. Amy started at 1445 and finished eating at 1522. Billy began at 2:52 pm and finished eating at half past three. Who was quicker and by how much ?

Exercise 3

1. Change the following times into minutes and seconds :-

- | | | |
|-----------------|-----------------|-----------------|
| (a) 70 seconds | (b) 90 seconds | (c) 120 seconds |
| (d) 140 seconds | (e) 180 seconds | (f) 200 seconds |
| (g) 240 seconds | (h) 255 seconds | (i) 310 seconds |



2. Change the following times into hours and minutes :-

- | | | |
|-----------------|-----------------|-----------------|
| (a) 90 minutes | (b) 130 minutes | (c) 170 minutes |
| (d) 190 minutes | (e) 230 minutes | (f) 300 minutes |
| (g) 380 minutes | (h) 430 minutes | (i) 560 minutes |

3. Copy the following and complete :-

- | | |
|--------------------|--------------------|
| (a) 4 mins 50 secs | (b) 6 mins 30 secs |
| + 2 mins 30 secs | - 3 mins 40 secs |

4. The first 3 tracks on a CD lasted :-

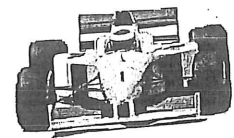
3 minutes 30 seconds, 3 minutes 45 seconds and 4 minutes 10 seconds.
How long did these 3 tracks last altogether ?



5. Eric Shoemaker's final two laps in the Canadian Grand Prix were :-

2nd last lap = 2 minutes 45 seconds Last lap = 3 minutes 7 seconds

- (a) Which lap did Eric complete faster ?
(b) What was the time difference between these two laps ?



6. State the times shown on each of the following stopwatches.
(The time shown here is 2 minutes 17.6 seconds)

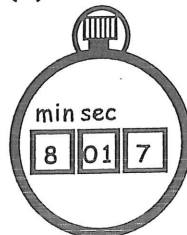
(a)



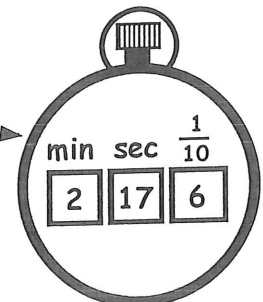
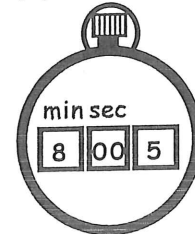
(b)



(c)



(d)



7.


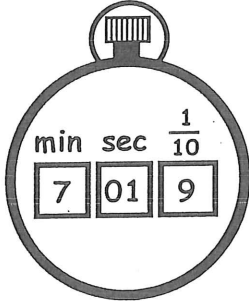


Sandra won the race in a time of 2 minutes 15.3 seconds.

Angela was only $\frac{7}{10}$ of a second behind her.

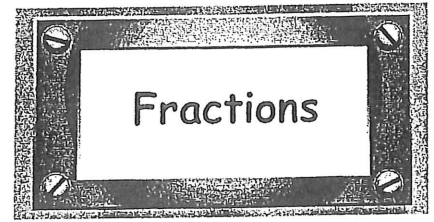
What was Angela's time ?

Revision Exercise

- Change the following 12 hour clock times to 24 hour clock times :-
 (a) 6:30 am (b) 7:40 pm (c) 11:32 pm.
- Change the following 24 hour clock times to 12 hour clock times :-
 (a) 1650 (b) 0825 (c) 2215.
- How long is it from :- (show how you used "counting on" to obtain your answer)
 (a) 3:45 pm to 9:05 pm (b) 1350 to 1725 ?
- A concert started at 1935 and lasted for 3 hours 40 minutes.
 When did it finish ?
- Change the following times into minutes and seconds :-
 (a) 100 seconds (b) 125 seconds (c) 205 seconds.
- Change the following times into hours and minutes :-
 (a) 75 minutes (b) 170 minutes (c) 305 minutes.
- ADD** the following times :-
 2 minutes 40 seconds, 3 minutes 30 seconds and 5 minutes 50 seconds.
- SUBTRACT** the following times :-
 5 minutes 10 seconds - 2 minutes 45 seconds
- What time is shown on this stopwatch ?


- Here are the times for 6 runners in a 400 metre race :-
 Lapsley - 44.3 secs Rodger - 45.4 secs Bryceland - 43.8 secs
 Baker - 45.5 secs Gemmill - 44.09 secs Millar - 45.2 secs
 List the 6 runners in order, winner first.

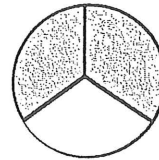


Chapter 10

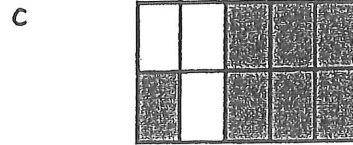
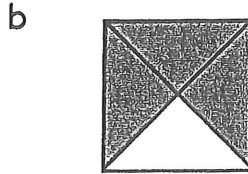
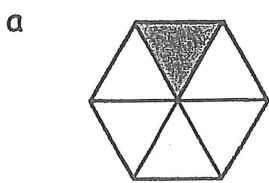


Exercise 1

1. a What fraction of this shape is shaded?
 b What fraction of the shape is **NOT** shaded?

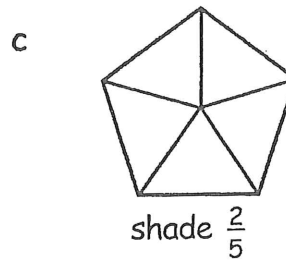
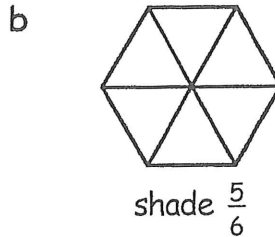
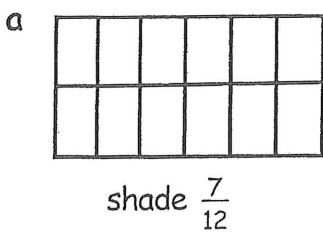


2. What fraction of each shape is shaded?



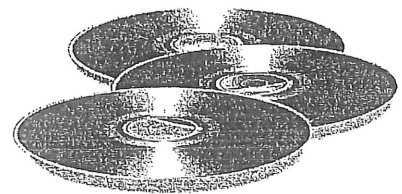
3. What fraction of each shape in question 2 is **NOT** shaded?

4. Copy or trace each shape and shade or colour the fraction shown :-



5. In a car park there were 5 cars, 4 vans and 2 buses.
 a How many cars, vans and buses were there altogether?
 b What fraction of them were cars?
 c What fraction were buses?

6. Cheryl keeps 5 DVD's, 3 CD's and 4 videos in a box.
 a What fraction of the box are DVD's?
 b What fraction of the box are **NOT** videos?

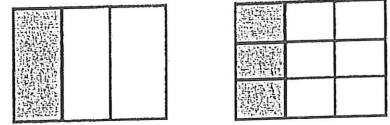


7. Last July it rained for 5 days.
 How many days are there in July and what fraction of the month was it raining?

Exercise 2

1. Look at the two pictures opposite.

- a What fraction of each shape is shaded ?
 b What can you tell about these 2 fractions from the pictures ?



2. Simplify each fraction by dividing top and bottom by 2 :-

- a $\frac{2}{4}$ b $\frac{6}{10}$ c $\frac{8}{14}$ d $\frac{20}{26}$ e $\frac{18}{22}$ f $\frac{12}{14}$

3. Simplify each fraction by dividing top and bottom by 5 :-

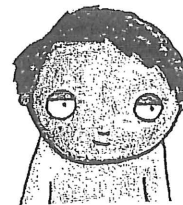
- a $\frac{5}{10}$ b $\frac{5}{30}$ c $\frac{10}{25}$ d $\frac{15}{20}$ e $\frac{25}{35}$ f $\frac{30}{40}$

4. Simplify each fraction as far as possible :-

- a $\frac{15}{25}$ b $\frac{4}{10}$ c $\frac{9}{15}$ d $\frac{30}{50}$ e $\frac{20}{30}$ f $\frac{12}{15}$
 g $\frac{18}{21}$ h $\frac{16}{20}$ i $\frac{14}{21}$ j $\frac{3}{15}$ k $\frac{8}{12}$ l $\frac{6}{18}$

5. Ravi had 50p. He spent 30p on a drink.

- a What fraction of his money did he spend ?
 b Simplify your answer.



6. A case of twelve bottles is used at a party.
 The case had :-

- 6 bottles of cola,
- 3 bottles of lemonade,
- 1 bottle of orange
- the rest was water.

- a What fraction of the case was cola ?
 b What fraction of the case was lemonade ?
 c What fraction of the case was water ?



(Simplify your three fractional answers.)

Exercise 3

1. Copy and complete :-

$\frac{1}{3}$ of 15p means \rightarrow " 15p divided by 3 =p ".

2. Find :-

a $\frac{1}{3}$ of 24 kg

b $\frac{1}{2}$ of £18

c $\frac{1}{4}$ of 36 g

d $\frac{1}{5}$ of 45 litres

e $\frac{1}{6}$ of 24p

f $\frac{1}{7}$ of 56 cm

3. At a party, $\frac{1}{4}$ of the 28 guests were girls.

a How many girls were at the party ?

b How many boys were at the party ?



4. a Amy is $\frac{1}{6}$ of her dad's age.

If her dad is 42 years old, how old is Amy ?

b Zak tired $\frac{1}{5}$ of the way into a 20 kilometre run.

How many kilometres had Zak run before tiring ?

c An eighth of the sweets in a bag of 40 sweets are red.

How many of the sweets in the bag are **NOT** red ?



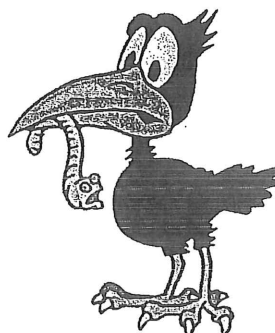
5. Ben spent $\frac{1}{4}$ of his pocket money on sweets.

If Ben received £2 pocket money, how much did he spend on sweets ?

6. There were 24 birds in my garden.

- $\frac{1}{4}$ of them were starlings
- $\frac{1}{3}$ of them were blackbirds
- $\frac{1}{6}$ of them were thrushes.
- The rest were sparrows.

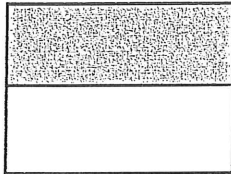
How many of each type of bird were there ?



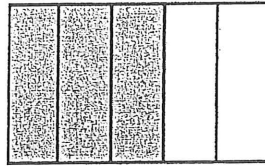
Revision Exercise

1. Write down the fraction of each shape that is shaded :-

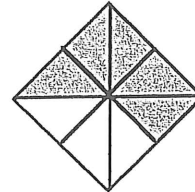
a



b



c

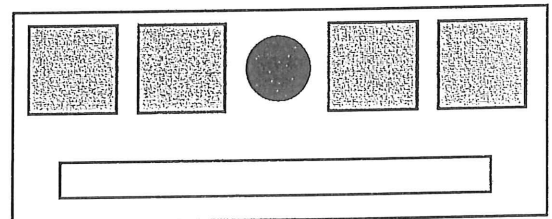


2. Write down the fraction of each shape in question 2 that is **NOT** shaded.

3. A diagram is made using 4 squares, 2 rectangles and a circle.

What fraction of the shapes are :-

a squares b rectangles c circles ?



4. Write down a fraction that is equivalent to $\frac{3}{4}$.

5. Simplify :-

a $\frac{2}{4}$

b $\frac{3}{12}$

c $\frac{5}{30}$

d $\frac{12}{16}$

e $\frac{15}{25}$

f $\frac{30}{70}$

6. Find :-

a $\frac{1}{3}$ of 27 kg

b $\frac{1}{5}$ of 45p

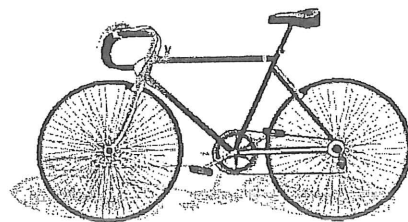
c $\frac{1}{6}$ of 36 ml

d $\frac{1}{7}$ of £35

e $\frac{1}{8}$ of 56 euros

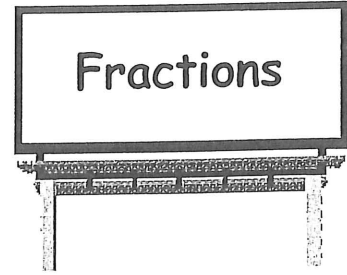
f $\frac{1}{10}$ of 320 mm.

7. Kate cycled for $\frac{1}{3}$ of an hour.
How many minutes did Kate cycle for ?



8. I am 28 years old.
I lived the first $\frac{1}{4}$ of my life in Edinburgh.
For how many years did I live in Edinburgh ?

Chapter 11



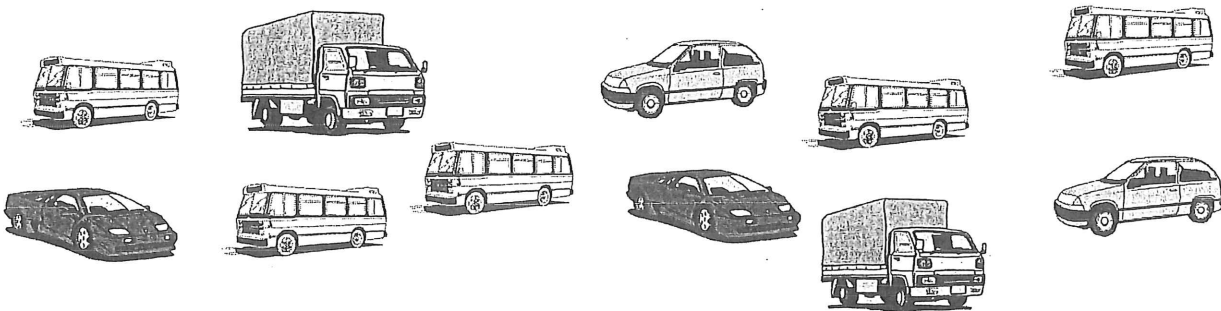
Exercise 1

1. For each of the following, write the fraction that is shaded :-

(a) (b) (c) (d) (e) (f) (g) (h) (i) (j)

2. For each shape in question 1, write the fraction that is not shaded.

3. Look at the pictures shown below.



(a) How many vehicles in total are in the picture ?

(b) Write down what fraction of the vehicles are :-

- (i) cars (ii) buses (iii) trucks (iv) not trucks.

4. (a) (i) Draw a rectangle in your jotter measuring 6 boxes by 2 boxes.

(ii) Shade or colour in $\frac{1}{3}$ (one box for every three).

(b) Repeat part (a), except shade $\frac{1}{4}$ of the rectangle.

5. What fraction of rooms in your house have a toilet in them ?





Exercise 2

1. Divide the top line and bottom line of each fraction by 2, to simplify each :-

(a) $\frac{2}{4}$ (b) $\frac{6}{8}$ (c) $\frac{10}{12}$ (d) $\frac{2}{20}$ (e) $\frac{32}{42}$ (f) $\frac{100}{102}$

2. Divide the top line and bottom line of each fraction by 3, to simplify each :-

(a) $\frac{3}{6}$ (b) $\frac{9}{12}$ (c) $\frac{15}{21}$ (d) $\frac{33}{36}$ (e) $\frac{60}{63}$ (f) $\frac{12}{45}$

3. For each of the following fractions, divide the numerator and the denominator by a number to simplify the fraction :-

(a) $\frac{5}{10}$ (b) $\frac{3}{18}$ (c) $\frac{4}{20}$ (d) $\frac{2}{30}$ (e) $\frac{3}{21}$ (f) $\frac{6}{18}$

(g) $\frac{10}{30}$ (h) $\frac{2}{200}$ (i) $\frac{12}{15}$ (j) $\frac{3}{36}$ (k) $\frac{2}{50}$ (l) $\frac{5}{120}$

4. (Harder) Simplify :-

(a) $\frac{7}{35}$ (b) $\frac{11}{77}$ (c) $\frac{18}{21}$ (d) $\frac{7}{63}$ (e) $\frac{13}{39}$ (f) $\frac{17}{51}$

Exercise 3



1. Find :-

(a) $\frac{1}{2}$ of 20 (b) $\frac{1}{3}$ of 15 (c) $\frac{1}{2}$ of 50

(d) $\frac{1}{3}$ of 27 (e) $\frac{1}{4}$ of 20 (f) $\frac{1}{5}$ of 55

(g) $\frac{1}{2}$ of 42 (h) $\frac{1}{5}$ of 60 (i) $\frac{1}{6}$ of 42

2. Find :-

(a) $\frac{1}{6}$ of 54 (b) $\frac{1}{7}$ of 49 (c) $\frac{1}{8}$ of 40

(d) $\frac{1}{9}$ of 54 (e) $\frac{1}{7}$ of 91 (f) $\frac{1}{8}$ of 72

(g) $\frac{1}{10}$ of 30 (h) $\frac{1}{10}$ of 900 (i) $\frac{1}{15}$ of 30

3. (a) There are 60 people on an aeroplane. $\frac{1}{3}$ of them are children.

How many children are on the aeroplane ?

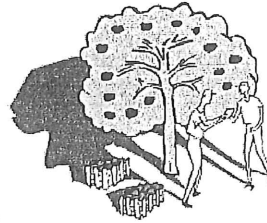


(b) There are 32 trees in an orchard.

$\frac{1}{4}$ of the trees are apple trees.

(i) How many trees are apple trees?

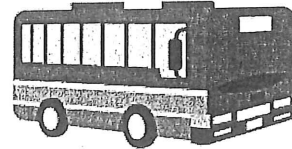
(ii) How many trees are not apple trees?



4. One fifth of the thirty children on a bus are girls.

(a) How many girls are in the group?

(b) How many boys are in the group?



5. A drinks cooler contains 36 bottles.
A third of the bottles are Cola.
A quarter of the bottles are Orange.
A sixth of the bottles are Irn Bru.
A ninth of the bottles are water.
The rest are beer.

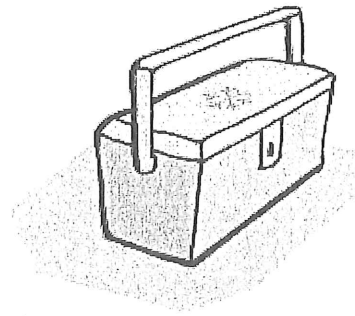
Find, the number of bottles of :-

(a) Cola

(b) Orange

(c) Irn Bru

(d) beer.



Exercise 4



1. Without using a calculator, do the following :-

(a) $\frac{2}{3}$ of 15 = $(15 \div 3) \Rightarrow 5 \times 2 = \dots$

(b) $\frac{2}{3}$ of 27

(c) $\frac{3}{4}$ of 24

(d) $\frac{3}{4}$ of 36

(e) $\frac{2}{5}$ of 20

(f) $\frac{3}{5}$ of 40

(g) $\frac{2}{7}$ of 21

(h) $\frac{4}{5}$ of 60

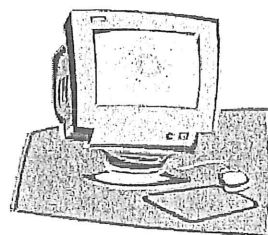
(i) $\frac{5}{6}$ of 30

(j) $\frac{7}{9}$ of 81

2. A computer room contained 32 computers.

$\frac{3}{4}$ of the computers were shut down.

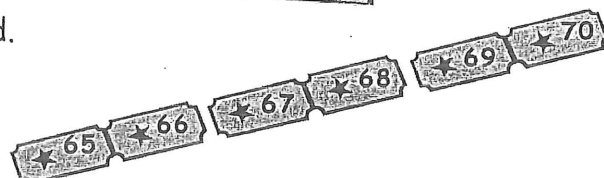
How many computers were shut down?



3. At the school raffle 95 tickets were sold.

Two fifths of the tickets won a prize.

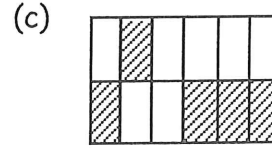
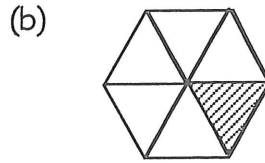
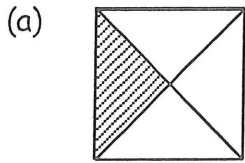
How many tickets did not win?



Revision Exercise



1. For each shape, say what fraction has been shaded :-



2. For each shape in question 1, write down the fraction not shaded.

3. Copy and complete :-

(a) $\frac{1}{2} = \frac{?}{8}$

(b) $\frac{2}{3} = \frac{6}{?}$

(c) $\frac{6}{11} = \frac{?}{77}$

4. Write an equivalent fraction to :-

(a) $\frac{1}{2}$

(b) $\frac{1}{5}$

(c) $\frac{2}{3}$

5. Write each of these fractions in their simplest form :-

(a) $\frac{8}{16}$

(b) $\frac{3}{15}$

(c) $\frac{7}{21}$

(d) $\frac{11}{55}$

(e) $\frac{14}{42}$

(f) $\frac{10}{200}$

6. Find :-

(a) $\frac{1}{2}$ of £30

(b) $\frac{1}{3}$ of 60 kg

(c) $\frac{1}{4}$ of 48 ml

(d) $\frac{1}{5}$ of €25

(e) $\frac{1}{7}$ of \$49

(f) $\frac{1}{12}$ of 24 g

7. Angela had £24 in her bank.

She spent half of her money paying her mobile phone bill and a quarter of her money on paying bank charges.

(a) How much was Angela's phone bill ?

(b) How much did she pay in bank charges ?

(c) How much does she have left in her account ?



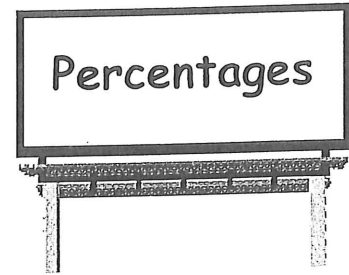
8. Find :-

(a) $\frac{2}{3}$ of £24

(b) $\frac{3}{4}$ of 36 litres

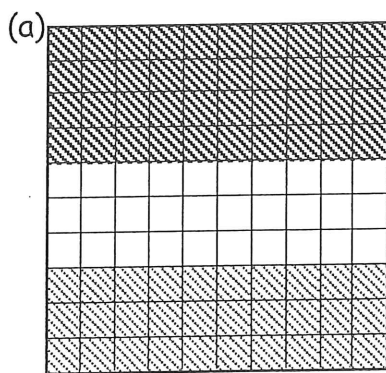
(c) $\frac{5}{8}$ of 56 p

Chapter 13

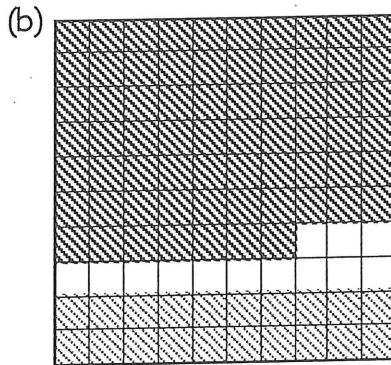


Exercise 1

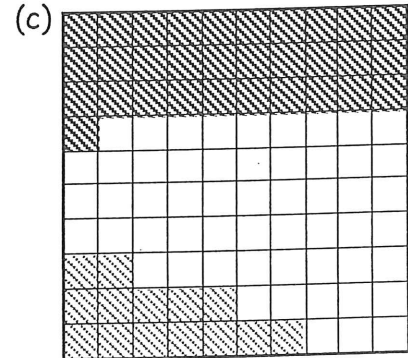
1. Each of these squares has been divided into 100 "bits".
Write down what each shaded region is, as a percentage of the whole square :-



Dark shading : 40%
Light shading : ...%
White :%



Dark shading : ...%
Light shading : ...%
White :%



Dark shading :
Light shading :
White :

Remember:

$$47\% \text{ means } \frac{47}{100} = 47 \div 100 = 0.47$$

$$3\% \text{ means } \frac{3}{100} = 3 \div 100 = 0.03$$

2. Write each of the following as a fraction :-

(a) 41% (b) 67% (c) 89% (d) 99% (e) 11% (f) 21%
(g) 2% (h) 7% (i) 9% (j) 51% (k) 1% (l) 100%

3. Write each of the following as a decimal :-

(a) 43% (b) 65% (c) 93% (d) 12% (e) 49% (f) 99%
(g) 31% (h) 9% (i) 4% (j) 20% (k) 1% (l) 100%

4. Write each of the following as a fraction and as a decimal :-

(a) 23% (b) 77% (c) 13% (d) 40% (e) 98% (f) 15%
(g) 6% (h) 30% (i) 17% (j) 2% (k) 8% (l) 81%

5. Write each fraction or decimal as a percentage :

(a) $\frac{23}{100}$ (b) $\frac{83}{100}$ (c) $\frac{10}{100}$ (d) 0.76 (e) 0.61 (f) 0.06
(g) 0.26 (h) $\frac{90}{100}$ (i) 0.01 (j) $\frac{50}{100}$ (k) 0.5 (l) $\frac{10}{200}$

Exercise 2



1. Copy and complete each of the following :-

(a) $\frac{9}{25} = 9 \div 25 = 0.\dots = \dots\%$ (b) $\frac{18}{75} = 18 \div \dots = 0.\dots = \dots\%$

2. Change each of the fractions shown to a decimal then to a percentage :-

(a) $\frac{3}{20}$ (b) $\frac{11}{25}$ (c) $\frac{16}{40}$ (d) $\frac{25}{50}$ (e) $\frac{1}{50}$ (f) $\frac{30}{30}$

3. Carefully, change each of these fractions to percentages :-

Remember : $0.1 = 10\%$

(a) $\frac{15}{25}$ (b) $\frac{24}{40}$ (c) $\frac{3}{10}$ (d) $\frac{24}{60}$ (e) $\frac{9}{15}$ (f) $\frac{30}{600}$

4. Kirsty scored $\frac{48}{60}$ in a Maths test.
Change her score to a percentage.

5. Hannah scored $\frac{45}{60}$ in her English test and $\frac{19}{25}$ in her French test.

In which subject did Hannah perform better ?
(Explain your answer).



Exercise 3 Remember :-

$$50\% = \frac{50}{100} = \frac{1}{2}$$

$$25\% = \frac{25}{100} = \frac{1}{4}$$

$$10\% = \frac{10}{100} = \frac{1}{10}$$

1. Calculate each of the following :-

- (a) 50% of £30 (b) 25% of 24 kg (c) 10% of 60 m
(d) 25% of € 16 (e) 10% of 200 ml (f) 50% of 300 km
(g) 10% of £5 (h) 50% of 1 cm (i) 25% of £2

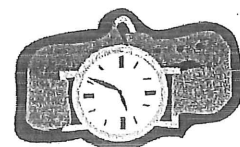


2. (a) Harriet had £70. She spent 50% of her money on a new dress.
How much did Harriet spend on her dress ?

(b) Ben weighed 60 kilograms. He dieted and lost 10% of his weight.
How many kilograms did he lose ?



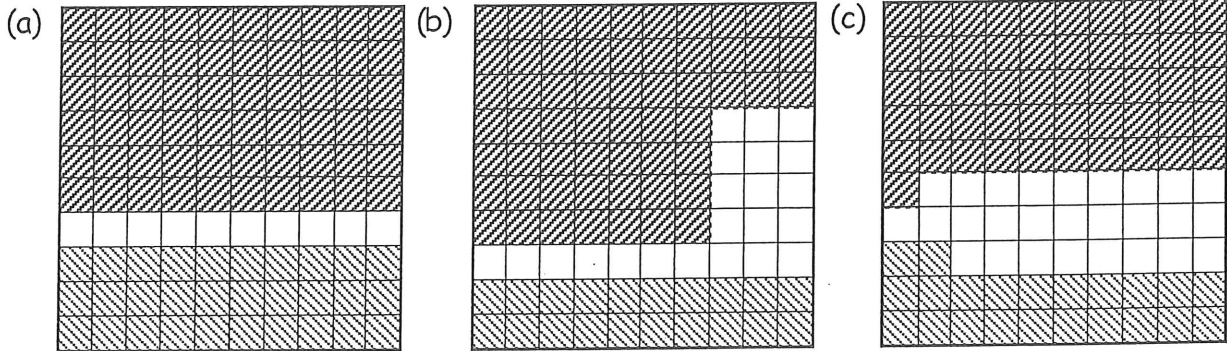
3. A shop is giving 25% off a watch which usually costs £120.
How much would it now cost for the watch ?



Revision Exercise



1. Write down what each shaded part is as a percentage of the whole square :-



2. Write each of the following as a fraction :-

- (a) 19% (b) 81% (c) 50% (d) 22% (e) 8% (f) 2%

3. Write each of the following as a decimal :-

- (a) 21% (b) 89% (c) 99% (d) 60% (e) 4% (f) 1%

4. Write each of the following as a fraction and as a decimal :-

- (a) 91% (b) 27% (c) 50% (d) 25% (e) 9% (f) 7%

5. Write each fraction or decimal as a percentage :-

- (a) $\frac{73}{100}$ (b) 0.87 (c) $\frac{42}{100}$ (d) 0.03 (e) $\frac{5}{100}$ (f) 0.4

6. Find :-

- (a) 50% of 64 kg (b) 10% of 70 yen (c) 25% of 32 p

7. (a) Zak drank 50% of his 200 millilitre bottle of coke.

How many millilitres did Zak drink ?



(b)

Colin had 60 marbles in his collection.

He lost 10% of his collection in one game !

How many marbles did Colin lose ?

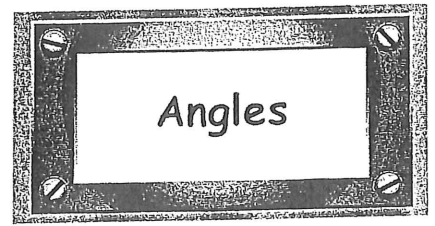
(c) Mr Schmidt had £50 in his bank.

He withdrew 25% of her money.

How much money did he withdraw ?

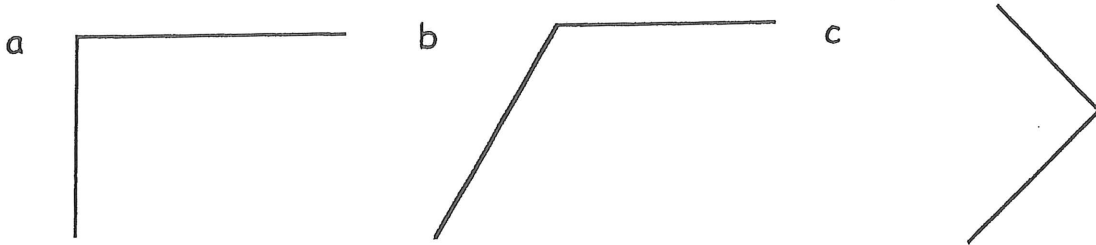


Chapter 9

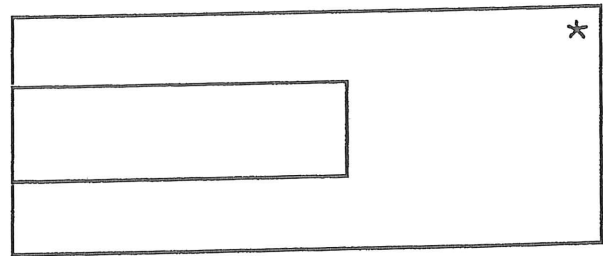


Exercise 1

1. Write YES or NO to show which of these are right angles. (You may use a template).

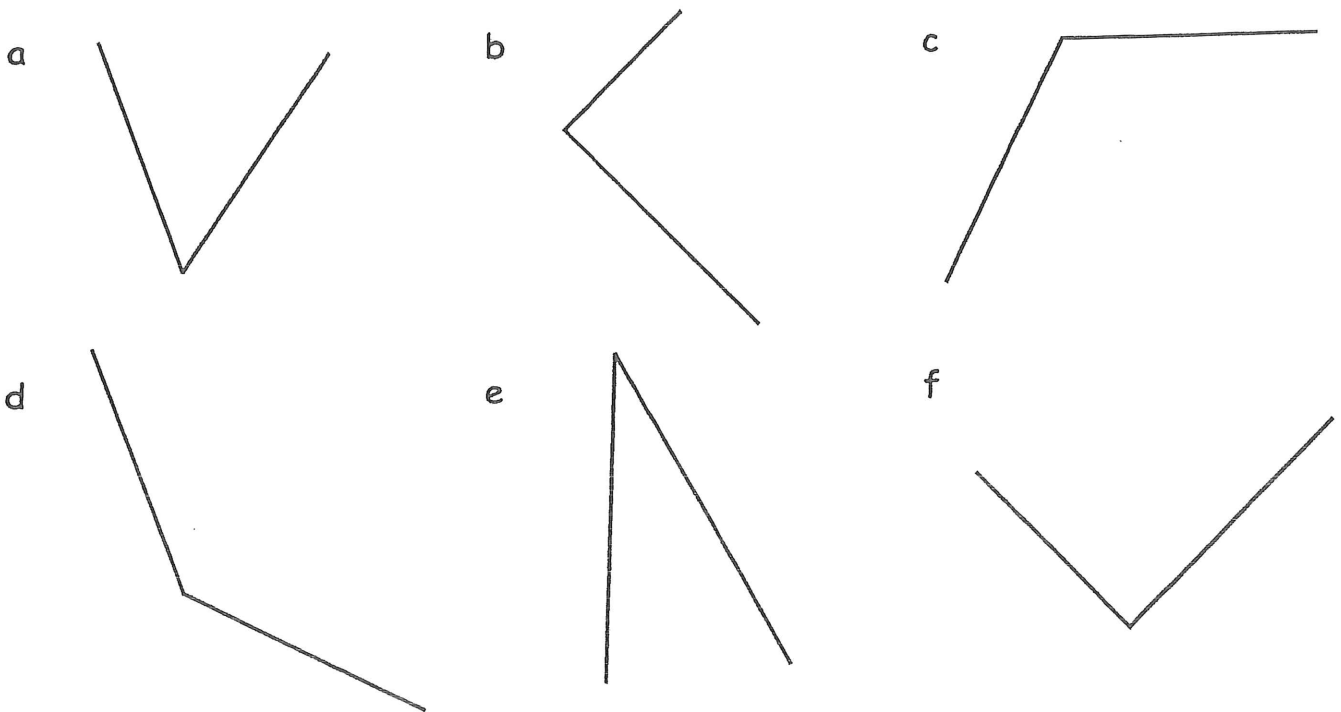


2. Trace or make a (neat) sketch of the shape shown opposite. Mark (with a *) all 10 right angles.



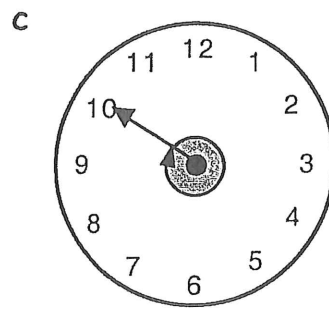
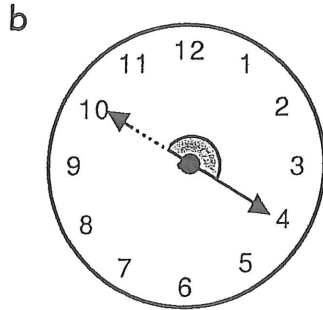
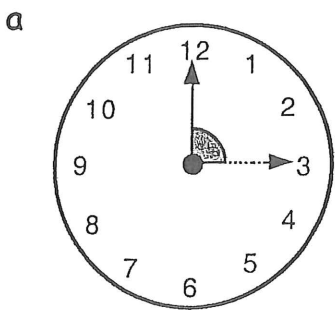
3. Describe each angle below by using one of the following from this list :-

- right angled
- bigger than a right angle
- smaller than a right angle



Exercise 2

- How many degrees are there in a :-
 a complete turn b half turn c quarter turn ?
- How many degrees does the minute hand move through on these clock faces :-



- How many degrees would the minute hand sweep through when it moves clockwise from the :-
 a 4 round to the 7 b 1 round to the 7 c 8 round to the 5 ?

Exercise 3

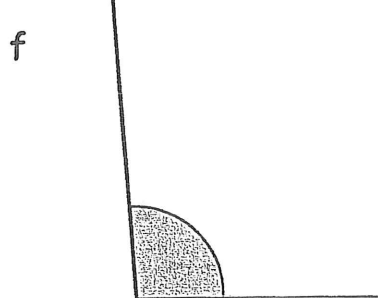
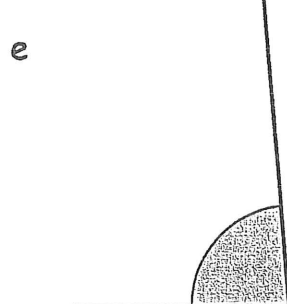
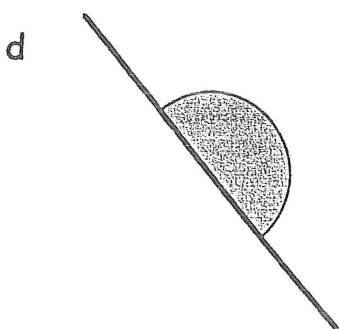
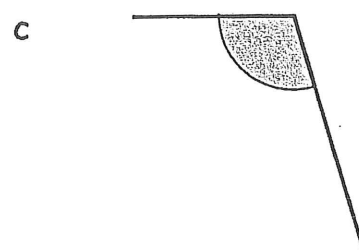
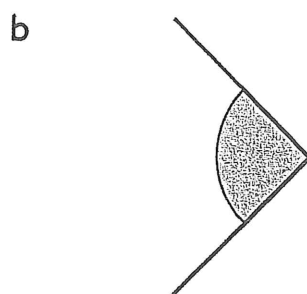
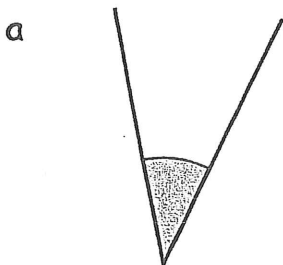
- Use a word from the list below to describe each angle :-

acute

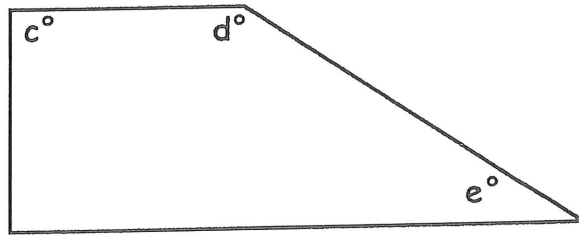
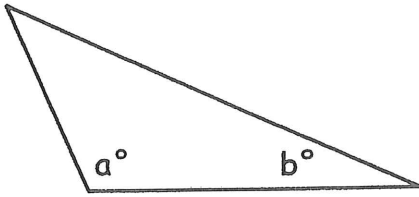
right

obtuse

straight



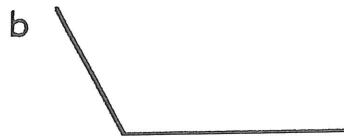
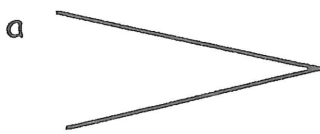
2. Write down what **TYPE** of angle is shown by the letters a, b, c, d and e ?



3. Write down whether these angles are acute, obtuse, right or straight :-
 a 50° b 95° c 160° d 90° e 180° f 89°

Revision Exercise

1. Decide if each angle below is right angled, bigger than a right angle or smaller than a right angle :-

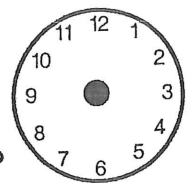


2. How many degrees are there in a :-

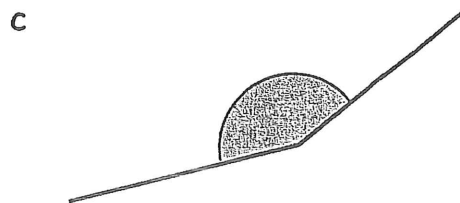
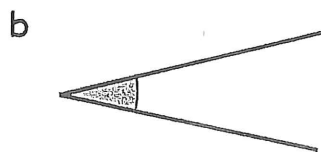
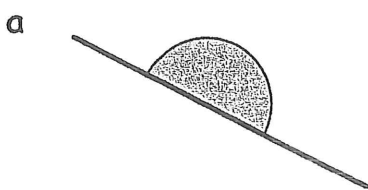
a right angle b complete turn c straight angle ?

3. How many degrees does the minute hand of a clock turn through (clockwise) when it moves from the :-

a 3 round to the 9 b 5 round to the 8 c 11 round to the 8 ?



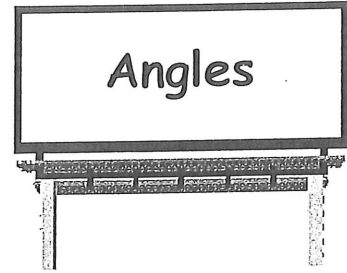
4. Use a word from - acute, obtuse, right or straight to describe each angle:-



5. Say whether these angles are acute, right, obtuse or straight :-

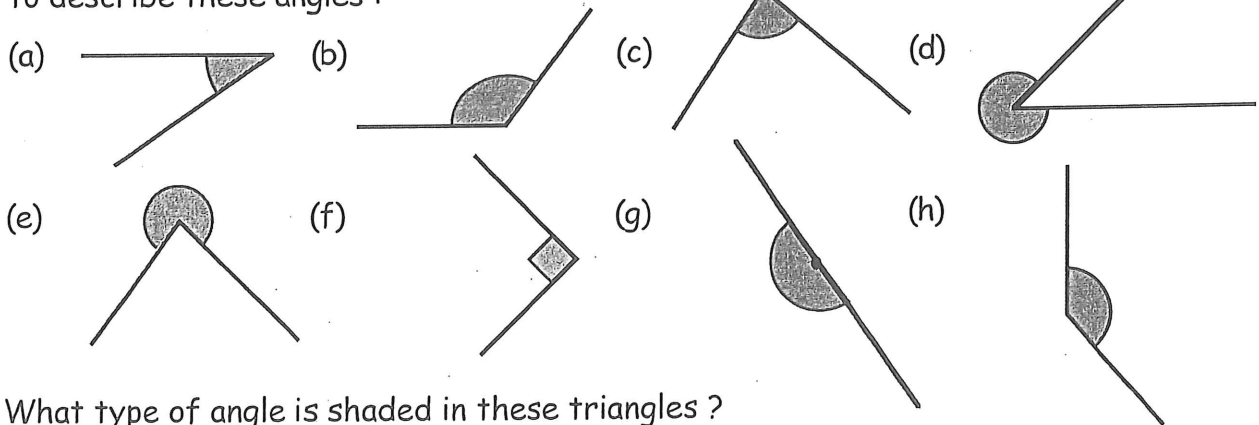
a 5° b 180° c 90° d 170° e 91° f 81°

Chapter 8

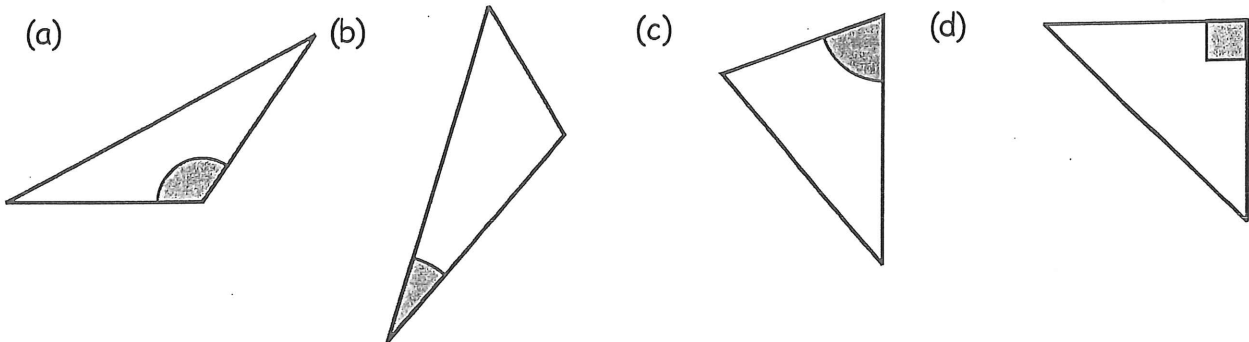


Exercise 1

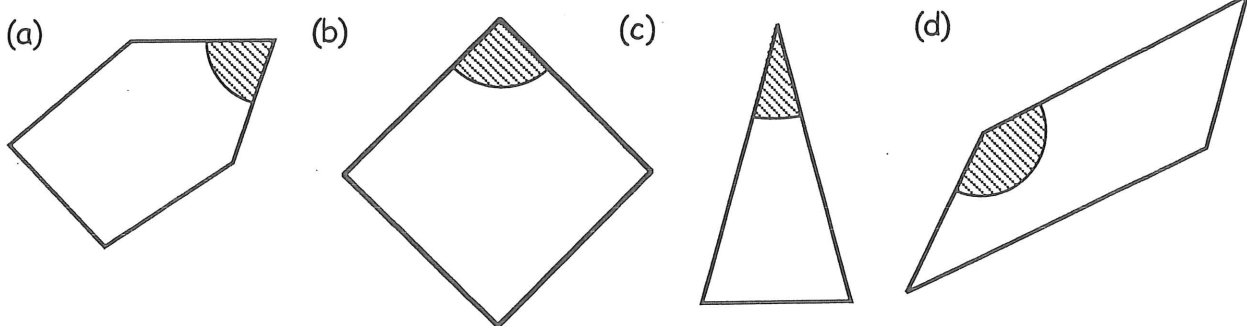
1. Use a word from " ACUTE, RIGHT, OBTUSE, STRAIGHT or REFLEX" to describe these angles :-



2. What type of angle is shaded in these triangles ?



3. What type of angle is marked in these shapes :-



4. Look at the angle sizes listed below :-

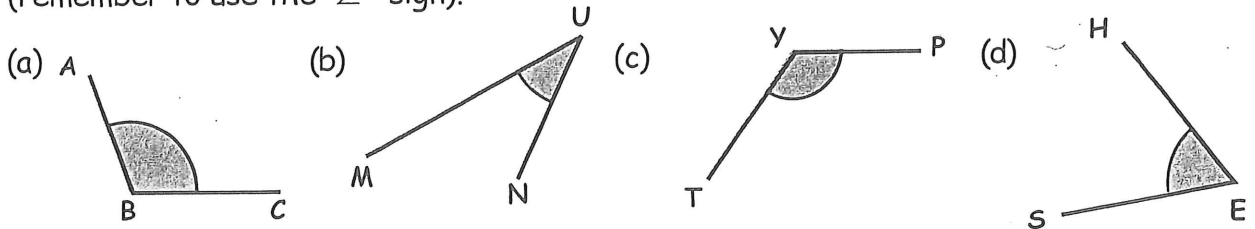
250°, 78°, 102°, 12°, 45°, 112°, 180°, 93°, 90°, 359°, 6°, 174°

Write down the sizes of those angles that are :-

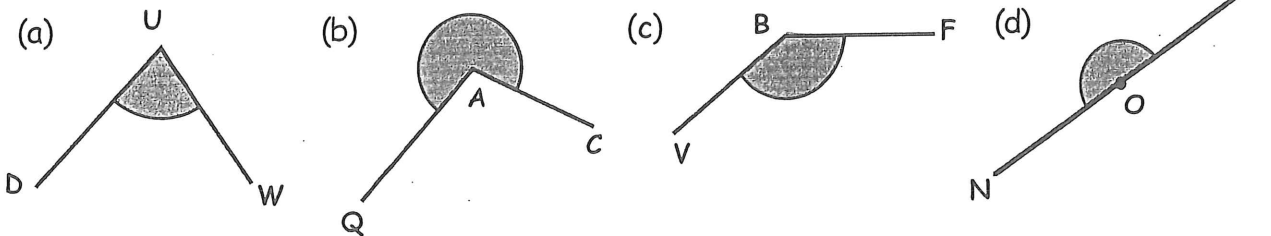
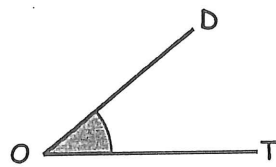
- (a) acute (b) obtuse (c) straight (d) right (e) reflex.

Exercise 2

1. Use 3 LETTERS each time to name the shaded angle :-
(remember to use the "∠" sign).



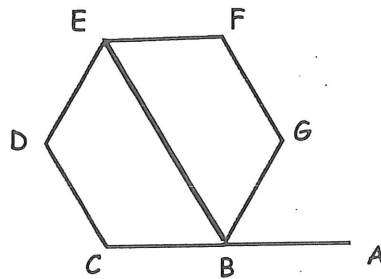
2. Use THREE letters to NAME each angle and also say what TYPE of angle it is :-
Example - ∠DOT is an ACUTE angle.



3. Copy the diagram shown opposite.

(a) Mark :-

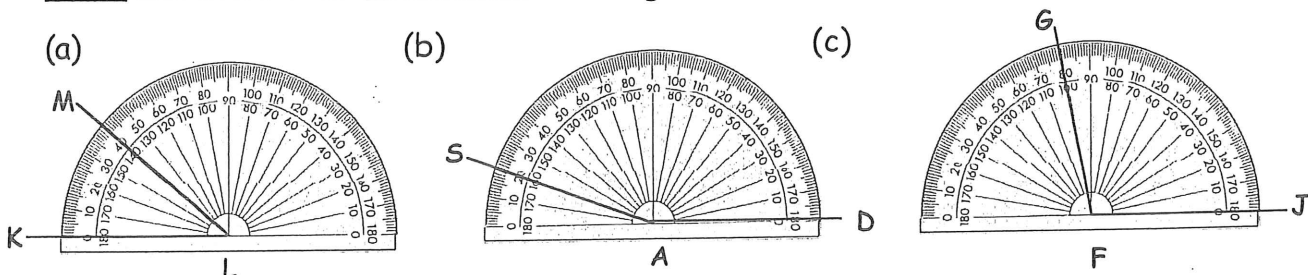
- (i) ∠DCB with an x.
- (ii) ∠FEB with an o.
- (iii) ∠ABG with an *.



- (b) What TYPE of angle is :- (i) ∠DEB (ii) ∠EDC (iii) ∠EBA ?

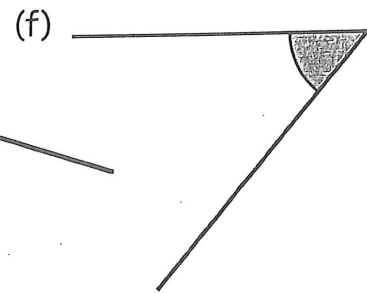
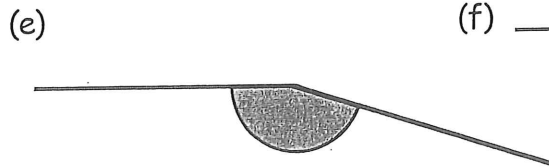
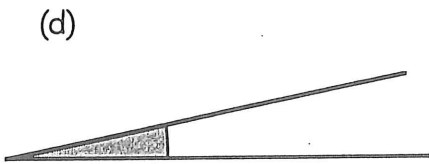
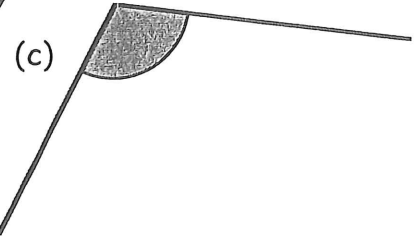
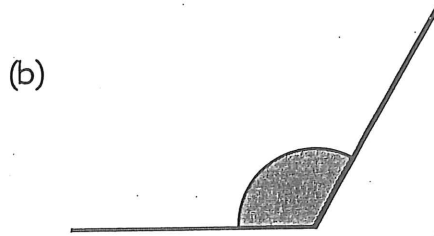
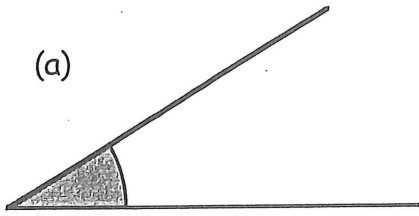
Exercise 3

1. Name and write down the size of each angle below :-



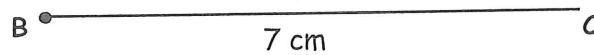
PROTRACTOR REQUIRED

2. For each shaded angle :- (i) estimate its size, (then)
 (ii) use a protractor to measure each angle.



Exercise 4 You will require a RULER and a PROTRACTOR

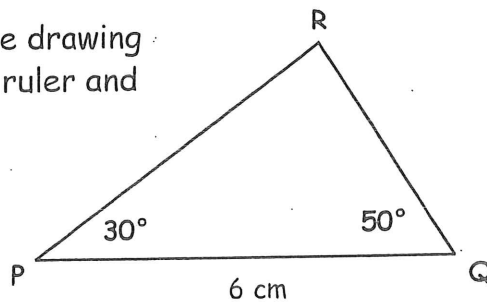
1. Draw a 7 centimetre line and put a dot on the end (left side).



Use your protractor to show $\angle ABC = 40^\circ$.

2. Use the same method to draw and label these angles :-
 (a) $\angle DEF = 60^\circ$ (b) $\angle PQR = 20^\circ$ (c) $\angle KLM = 120^\circ$ (d) $\angle STU = 160^\circ$.
3. Now draw and label these angles. (bit harder).
 (a) $\angle AGT = 45^\circ$ (b) $\angle NWD = 78^\circ$ (c) $\angle GFU = 115^\circ$ (d) $\angle CKP = 172^\circ$.

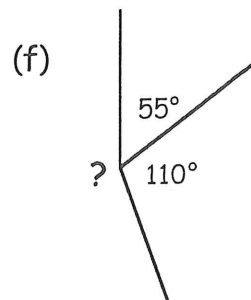
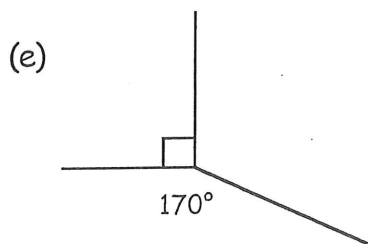
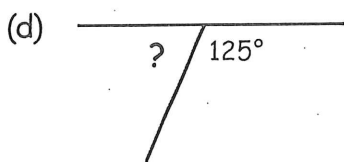
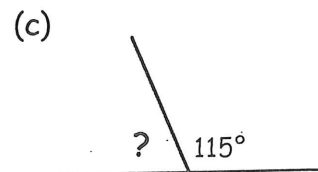
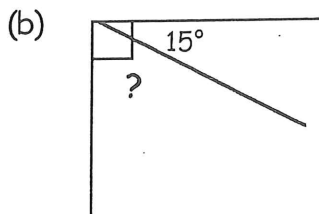
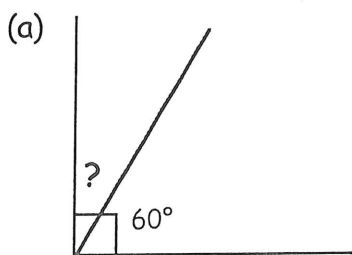
4. Make a full size accurate drawing of this triangle, using a ruler and protractor.





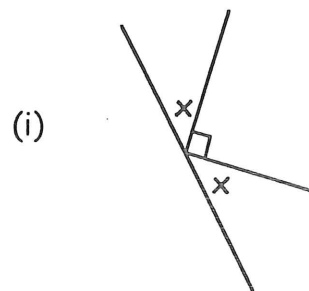
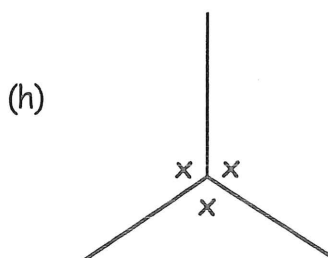
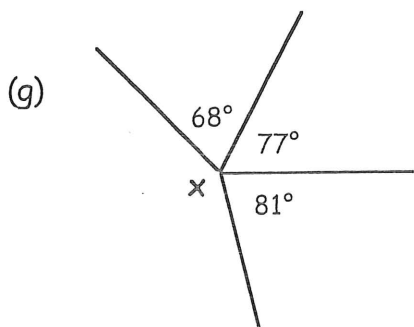
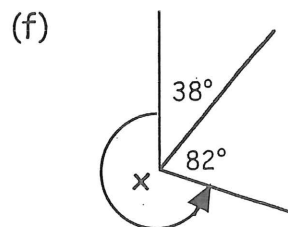
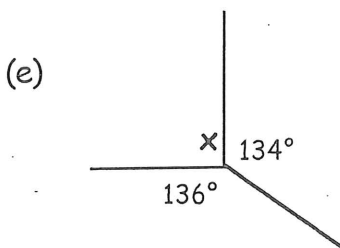
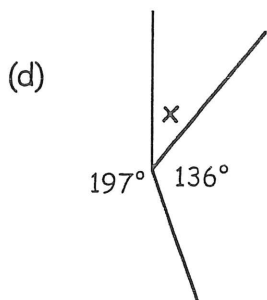
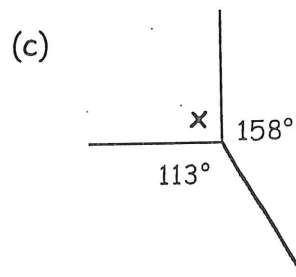
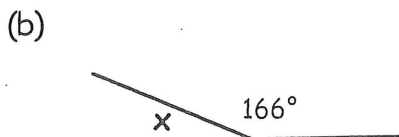
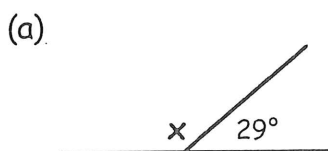
Exercise 5

1. Calculate the size of the unknown angle in each of the following :-



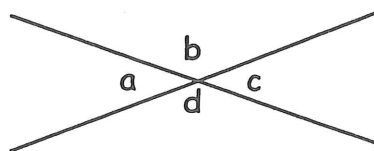
2. Shown below are some more angles, with more awkward numbers.

Find the value of x .

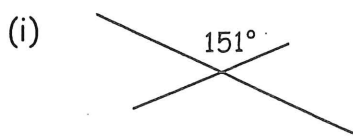
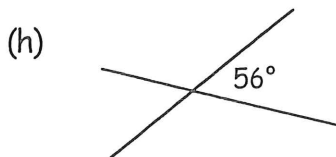
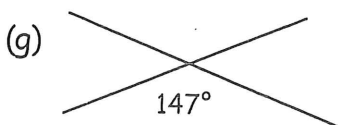
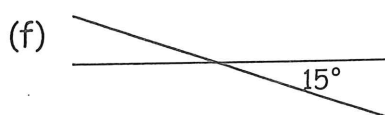
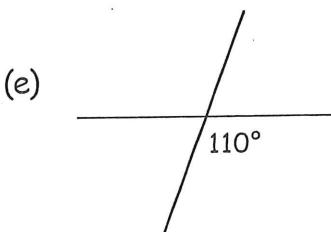
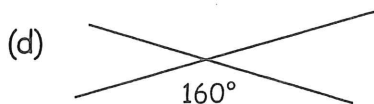
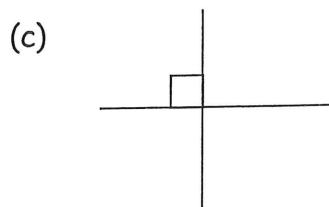
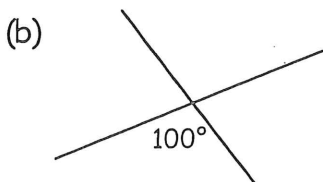
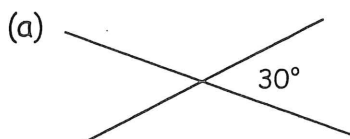


Exercise 6

- Shown are two lines which cross at a point.
 COPY and complete the following statements :-
 (a) Angle a and angle d are angles.
 (b) Angle b is vertically opposite to angle



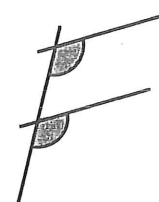
- Make a neat sketch of the following diagrams and fill in the sizes of ALL the angles



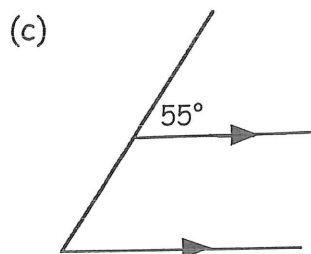
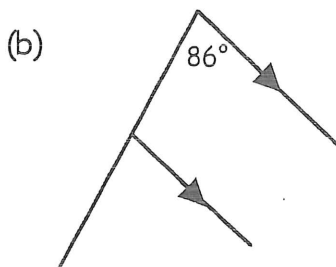
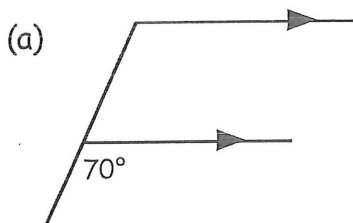
Exercise 7

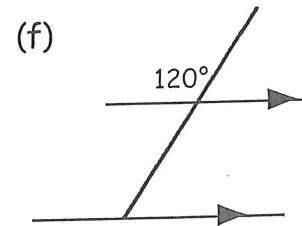
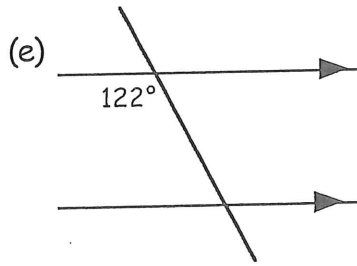
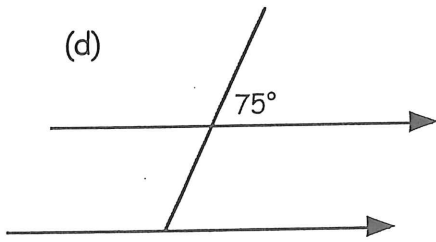
- COPY and complete the following statement :-
 "The proper name for F angles are angles".

- Look at the F shape. If the two shaded angles are equal, what must be true about the direction of two of the lines?



- COPY the following diagrams and enter ALL the missing angles :-

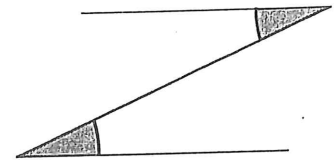




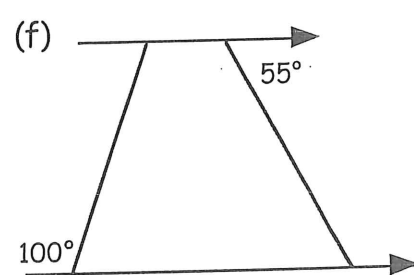
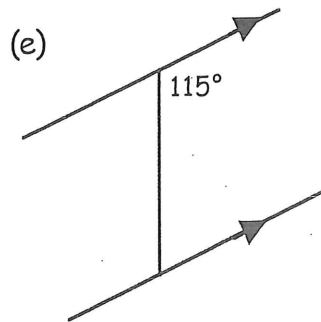
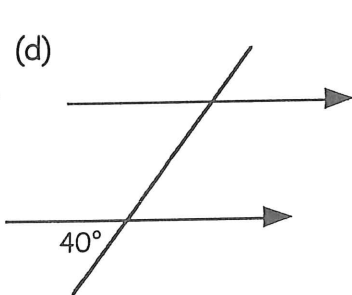
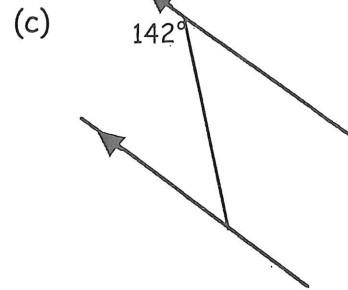
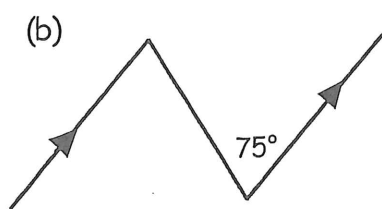
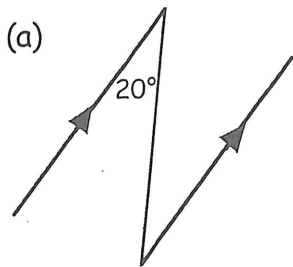
4. COPY and complete the following statement :-

"The proper name for Z angles are angles".

5. Look at the Z shape. If the two shaded angles are equal, what must be true about the direction of two of the lines ?

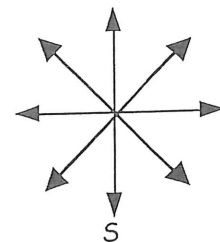


6. COPY these diagrams and fill in ALL the missing angles :-



Exercise 8

1. COPY and complete the remaining 7 points of the compass from the diagram shown.



2. How many degrees are there from :-

- (a) South to West (clockwise)
- (b) North to West (clockwise)
- (c) North to South-East (clockwise)
- (d) East to South-West (clockwise)
- (e) West to North (anti-clockwise)
- (f) North to South-West (anti-clockwise)
- (g) East to North-West (clockwise)
- (h) South to North-West (anti-clockwise)

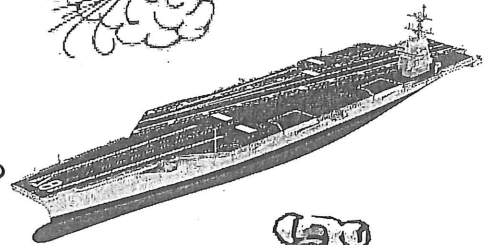
3. (a) George was facing South. He then made a $\frac{1}{4}$ turn clockwise.
In which direction is George now facing ?



(b) The wind was blowing in a North-Westerly direction.
It then turned through an angle of 180° .
In which direction was the wind now blowing ?



(c) An aircraft carrier was sailing North-East.
The ship then turned through 90° clockwise.
In which direction did the ship end up travelling ?



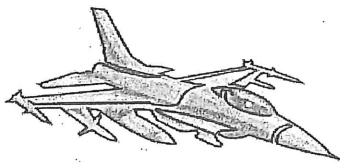
(d) A rambler was travelling South-West.
She turned 90° anticlockwise and moved on.
She then turned 135° clockwise.
In which direction was she finally facing ?



(e) A jet is flying South-East.

The jet turns clockwise
and now faces North.

By how many degrees had the
jet turned through ?



4. The map shows Craggy Island.
The town of ABBIT lies at a point
around the middle.

(a) If I was in ABBIT, where would
I be looking towards if I faced :-

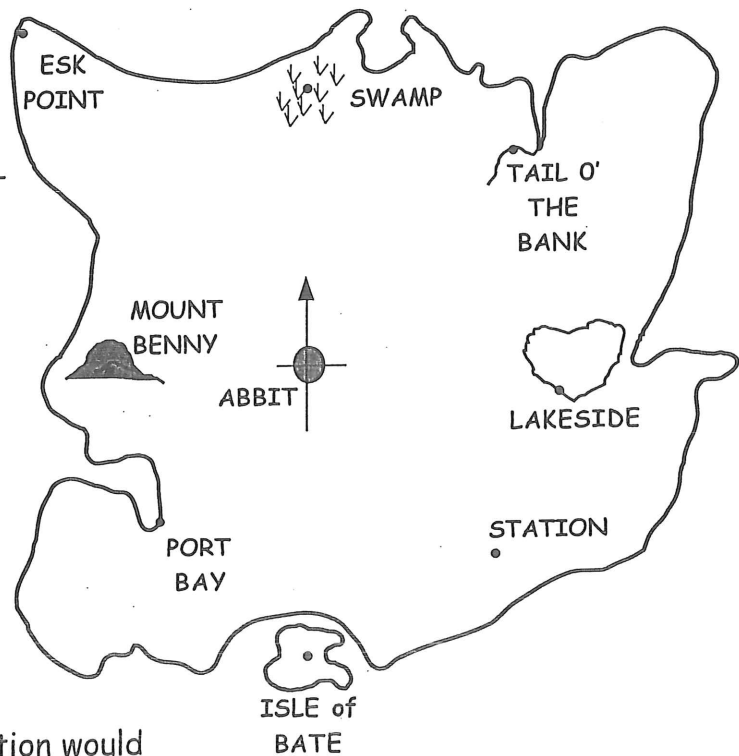
- (i) South ? (ii) East ?
- (iii) N West ? (iv) S East ?

(b) Where are the following in
relation to ABBIT :-

- (i) the SWAMP ?
- (ii) TAIL O' THE BANK ?
- (iii) MOUNT BENNY ?
- (iv) PORT BAY ?

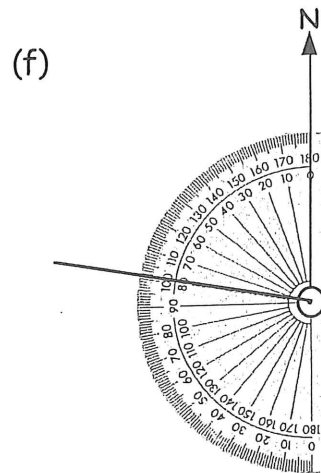
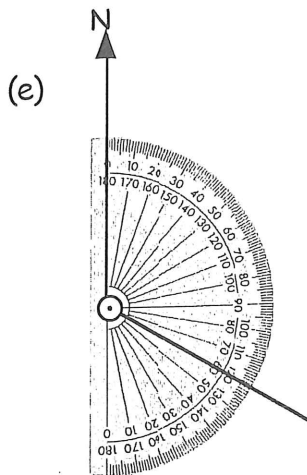
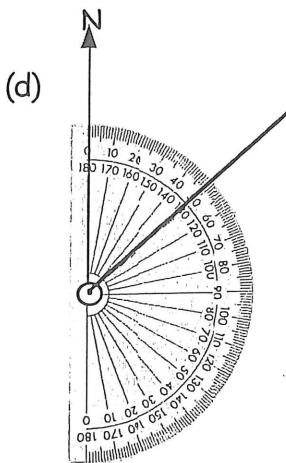
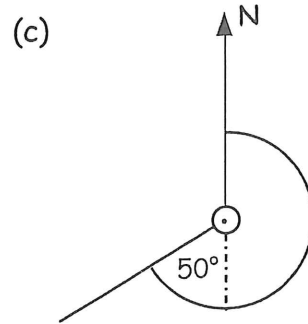
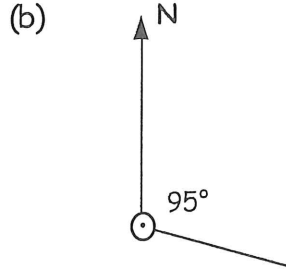
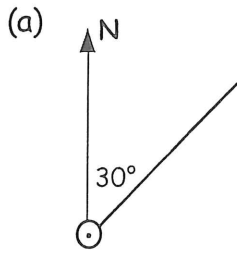
(c) From the station, in which direction would
I have to travel to go to :-

- (i) the Tail o' the Bank (ii) Esk Point ?

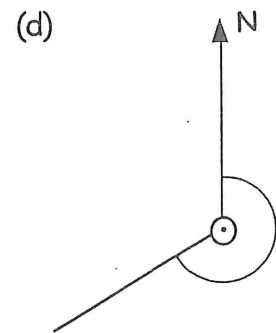
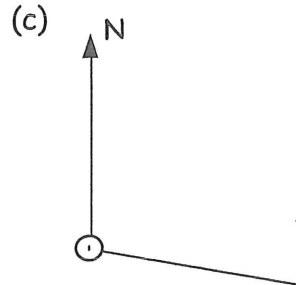
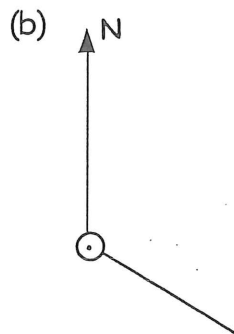
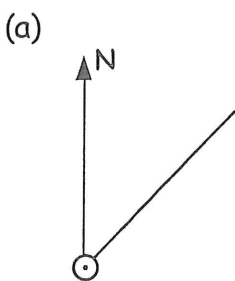


Exercise 9

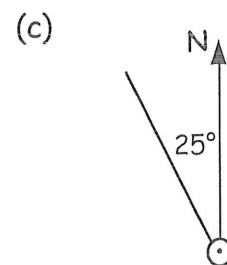
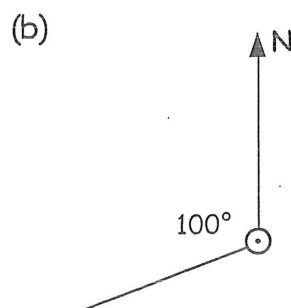
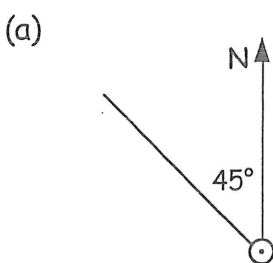
1. Write down the 3-figure bearing for each of the following :-



2. Use a PROTRACTOR to measure the 3-figure bearing of each angle :-



3. Write down the 3-figure bearing for each of the following directions :-



4. Write down the 3-figure bearing of the following directions :-

- (a) North-East (b) East (c) South (d) North-West

5. Mark a point on the page of your jotter and call it P.
Draw a NORTH LINE from your point.

Show, using a PROTRACTOR, a bearing of 040°.

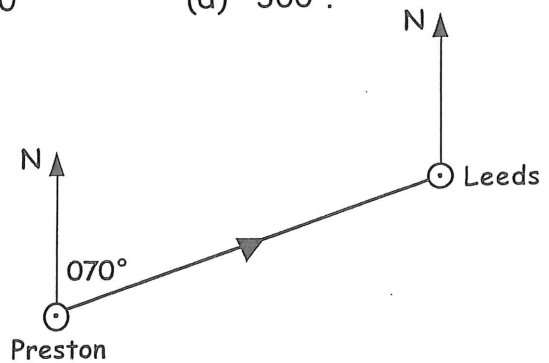


6. Repeat Question 5 to show each of the following bearings :-

- (a) 030° (b) 150° (c) 220° (d) 300°.

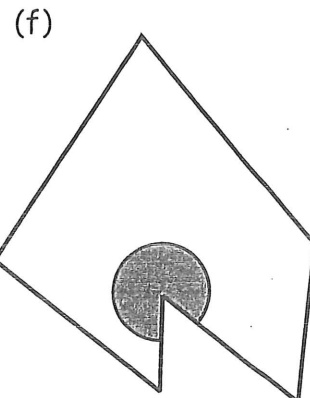
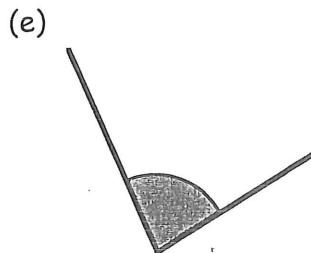
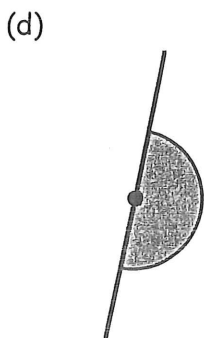
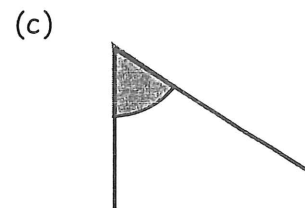
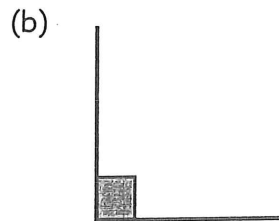
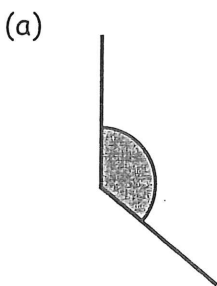
7. The bearing of Leeds from Preston is 070°.

Calculate (do not measure) the bearing of Preston from Leeds.



Revision Exercise

1. Use a word from " ACUTE, RIGHT, OBTUSE, STRAIGHT or REFLEX" to describe each type of shaded angle shown below :-



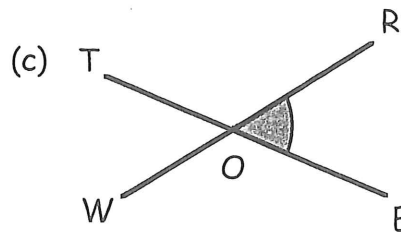
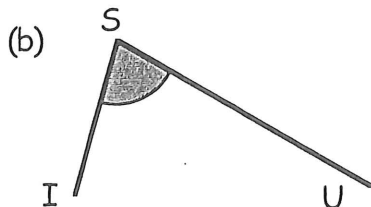
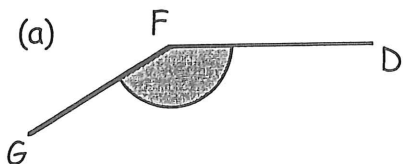
2. Look at the angle sizes listed below :-

$64^\circ, 132^\circ, 90^\circ, 179^\circ, 210^\circ, 4^\circ, 149^\circ, 97^\circ, 30^\circ, 57^\circ, 112^\circ, 180^\circ.$

Which angles are :-

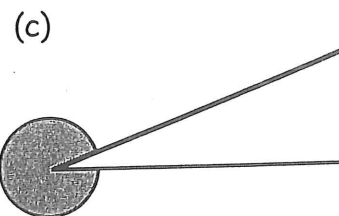
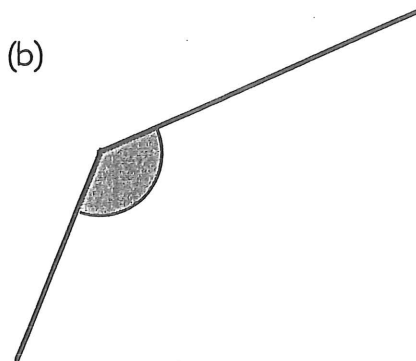
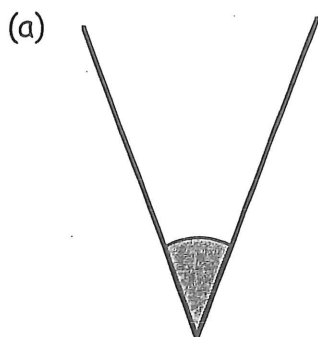
- (a) acute (b) obtuse (c) right (d) straight (e) reflex ?

3. Use 3 letters to name each shaded angle :-



4. For each shaded angle :- (i) estimate its size.

(ii) use a PROTRACTOR to measure the size of the angle.



5. Carefully draw each of the following angles and label them with their letters :-

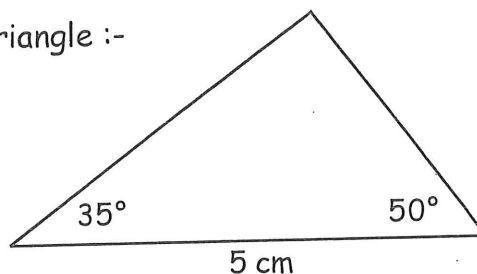
(a) $\angle ABC = 20^\circ$

(b) $\angle DEF = 130^\circ$

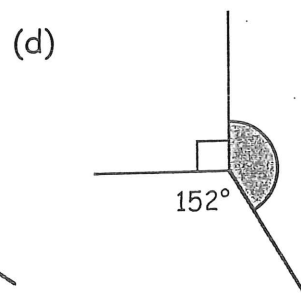
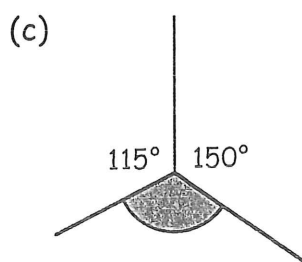
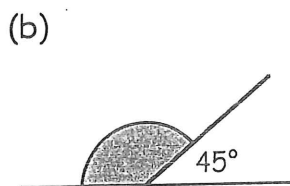
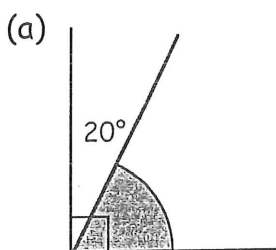
(c) $\angle PQR = 210^\circ$

6. Make a full size accurate drawing of this triangle :-

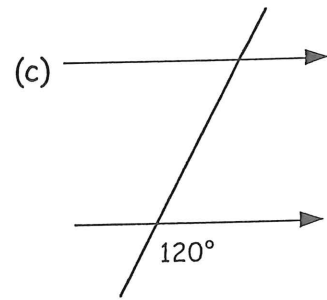
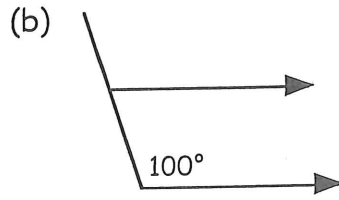
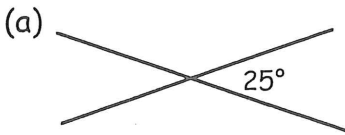
PROTRACTOR & RULER NEEDED



7. Calculate the sizes of the shaded angles :-



8. Copy each diagram and fill in the sizes of all the angles :-



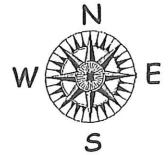
9. How many degrees are there from :-

(a) West to North (clockwise)

(b) South to East (clockwise)

(c) North to South-East (anti-clockwise)

(d) North-West to East (clockwise) ?



10.

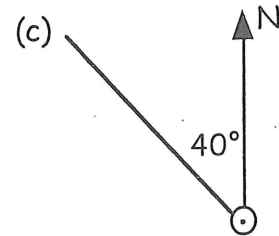
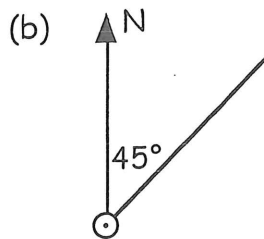
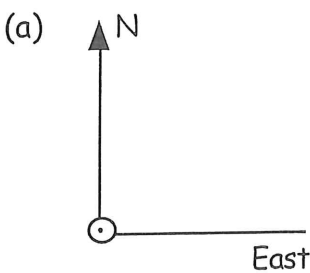


A pirate ship is sailing North-West.

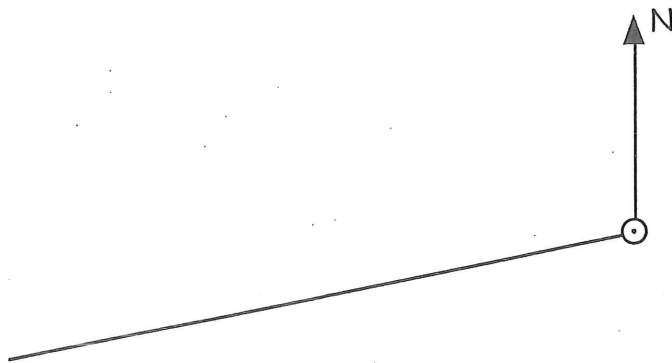
It then makes a 225° turn clockwise.

In which direction is the pirate ship now sailing ?

11. Write down the 3-figure bearing shown in each diagram :-



12. Use a PROTRACTOR to measure the 3-figure bearing of the direction shown below :-



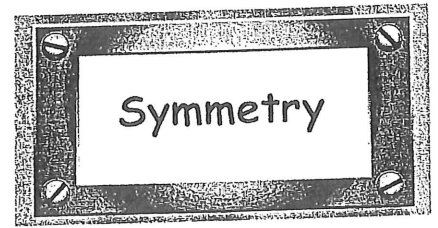
13. Use a PROTRACTOR to show these 3-figure bearings :-

(a) 070°

(b) 230°

(c) 290° .

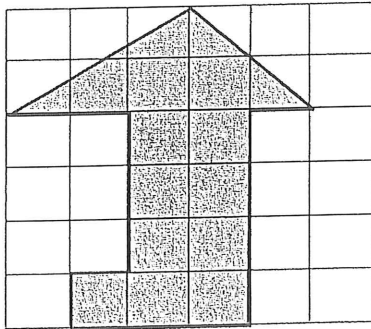
Chapter 2



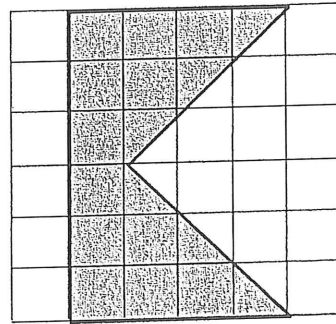
Exercise 1

1. One of these two shapes has a line of symmetry - which one ?

a

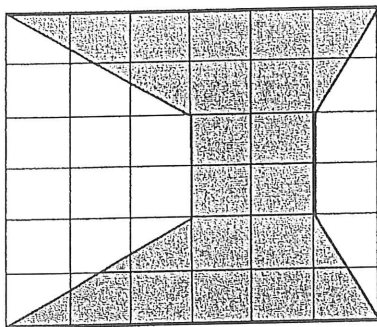


b

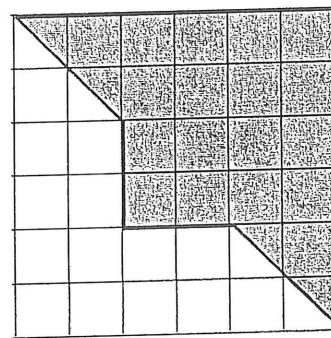


2. Draw (or trace) each shape carefully into your jotter and mark any lines of symmetry.

a

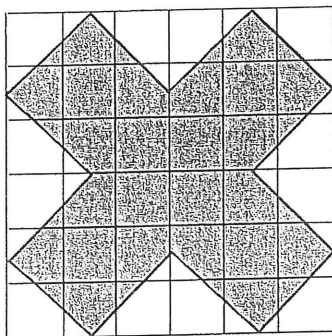


b

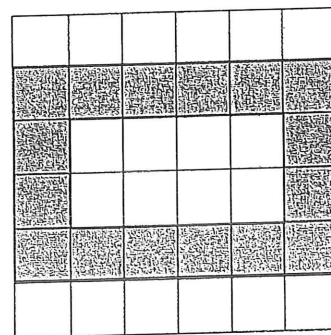


3. How many lines of symmetry does each shape have ?

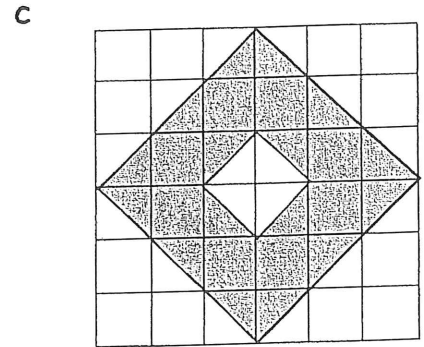
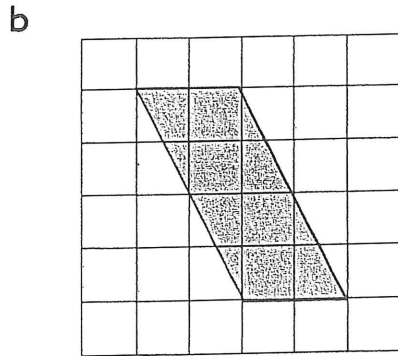
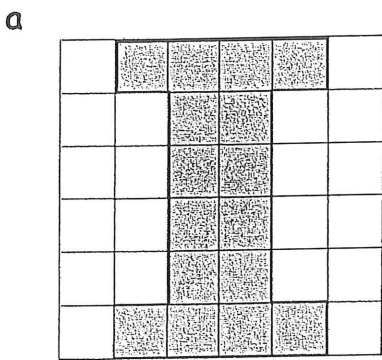
a



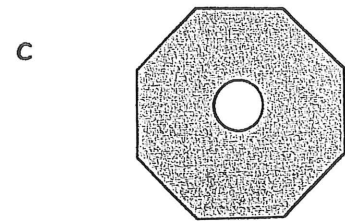
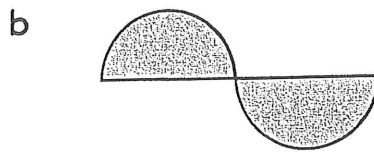
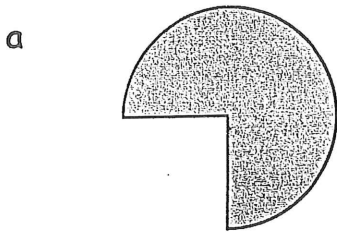
b



4. COPY these three shapes and draw in any lines of symmetry.



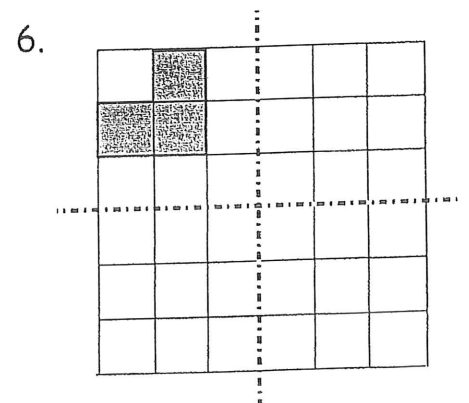
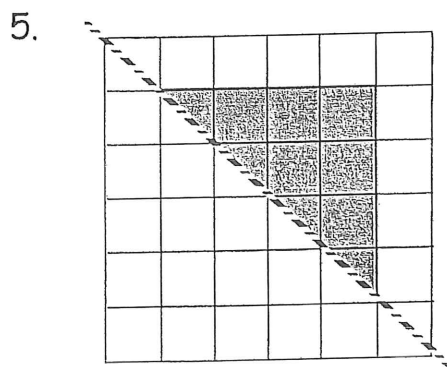
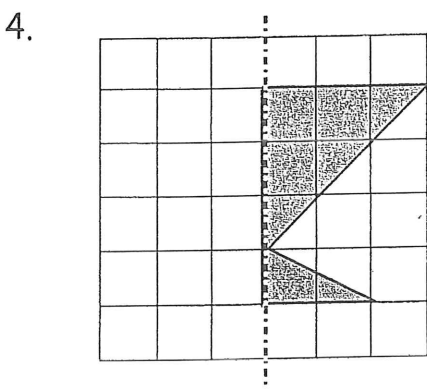
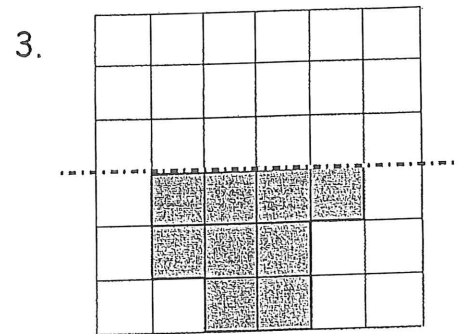
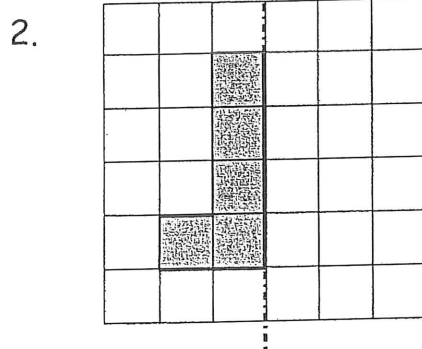
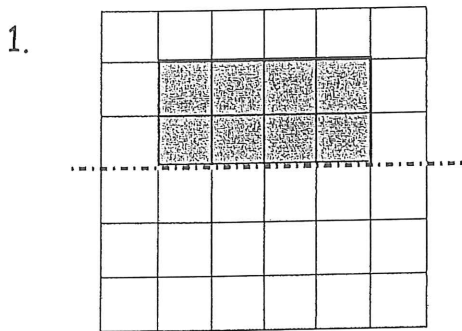
5. How many lines of symmetry does each shape below have?



Exercise 2

Copy each shape onto squared paper.

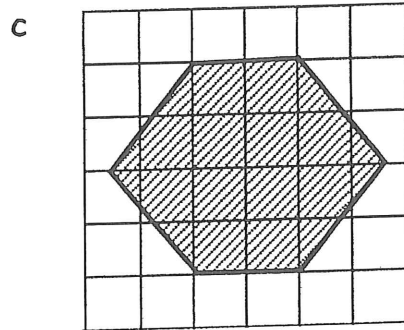
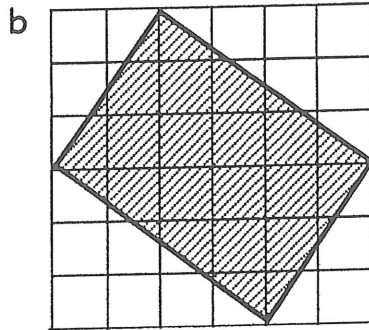
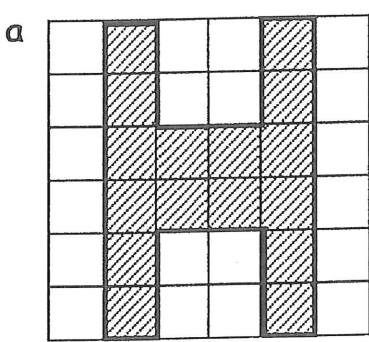
Draw the rest of the shape so that the dotted line(s) are lines of symmetry.



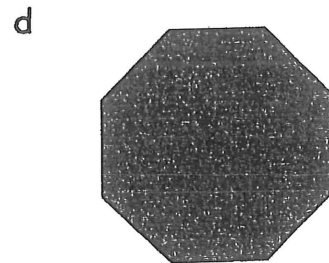
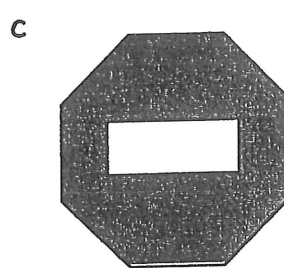
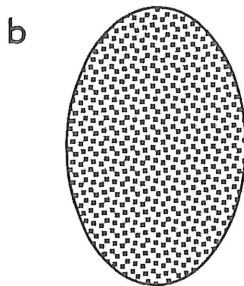
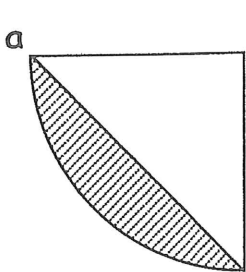


Revision Exercise

1. COPY these three shapes and draw in any lines of symmetry.

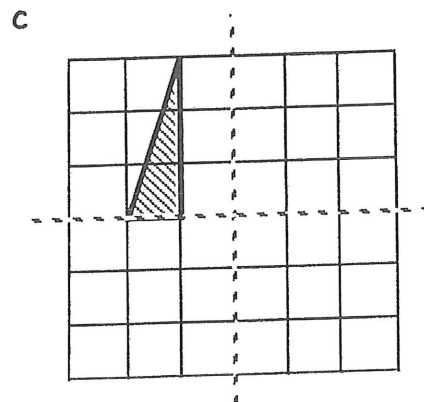
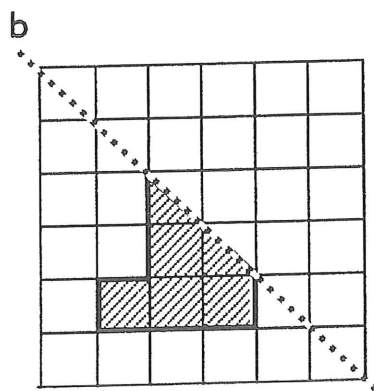
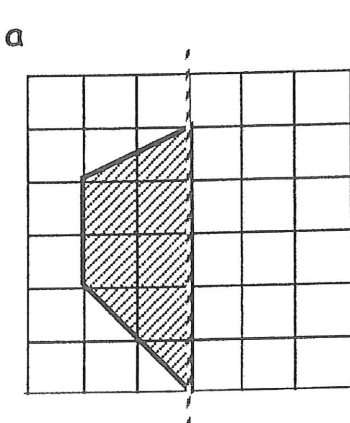


2. How many lines of symmetry does each shape have?

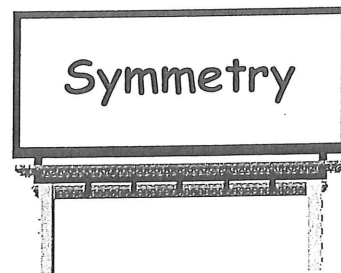


3. COPY each shape onto squared paper.

Draw the other half using the dotted line as a line of symmetry.

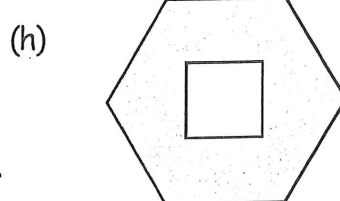
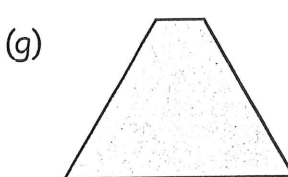
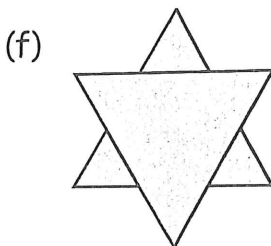
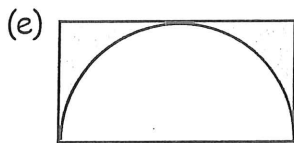
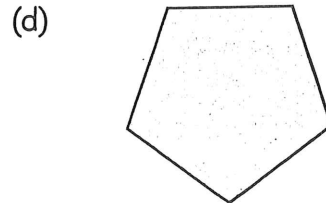
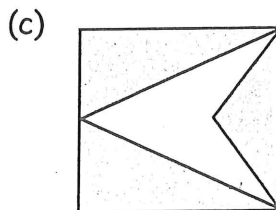
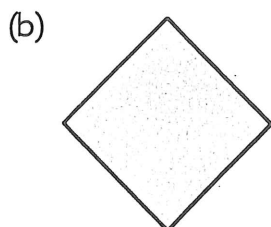
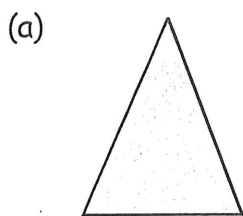


Chapter 2

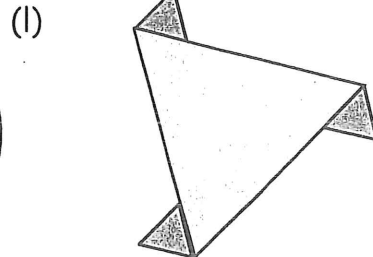
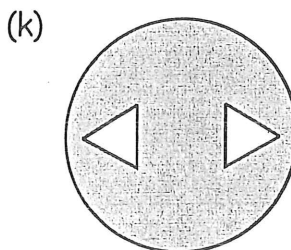
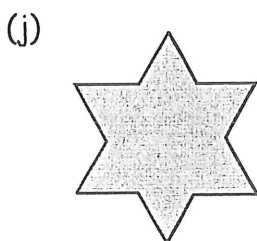
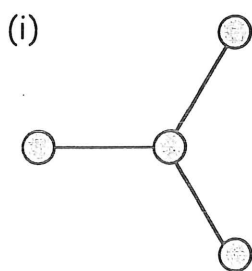
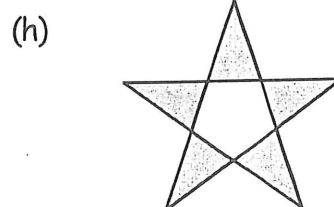
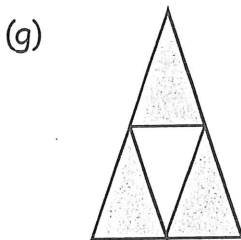
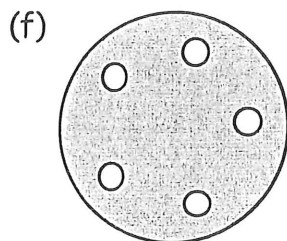
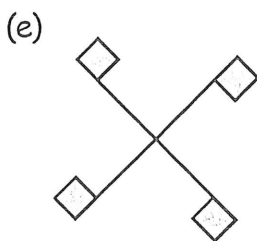
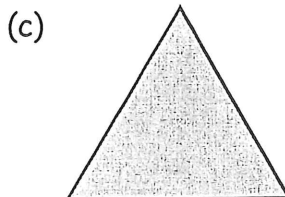
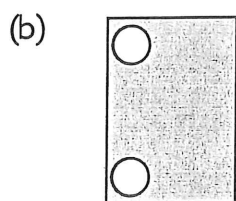
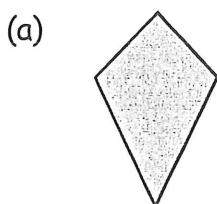


Exercise 1

1. Either trace the following shapes or make a neat copy of each in your jotter. Mark any lines of symmetry on your drawings (you can check by folding).

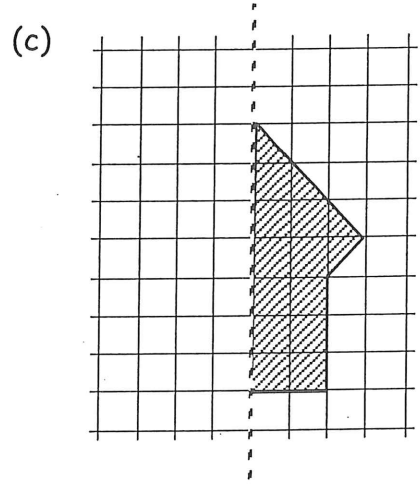
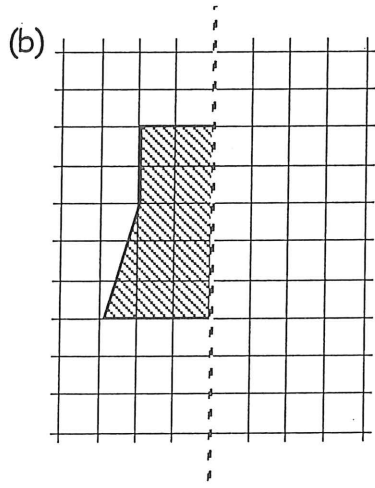
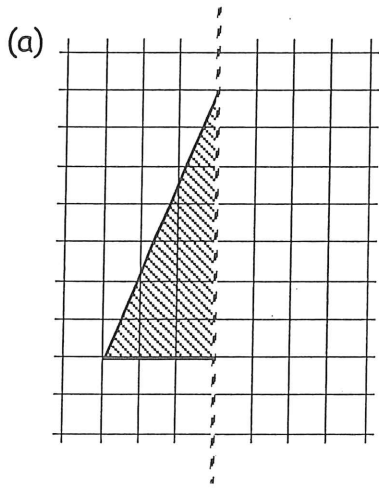


2. State how many lines of symmetry each of these shapes has :-

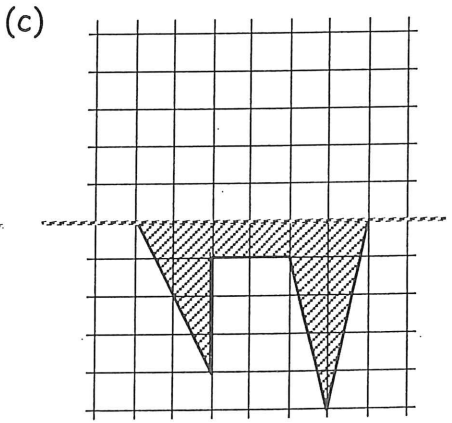
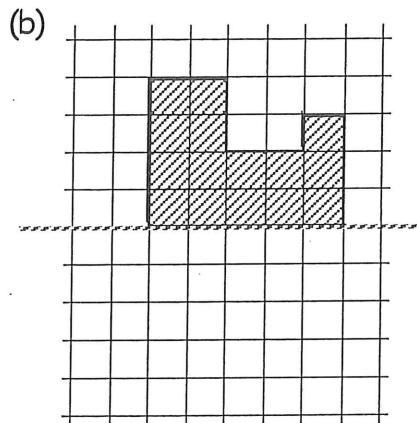
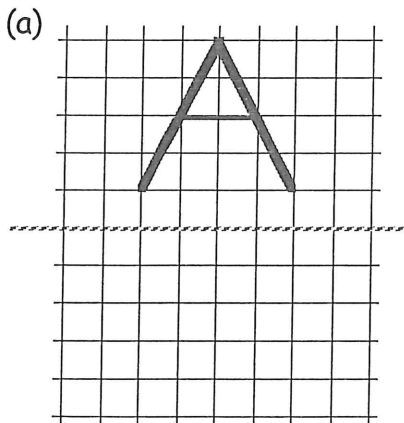


Exercise 2

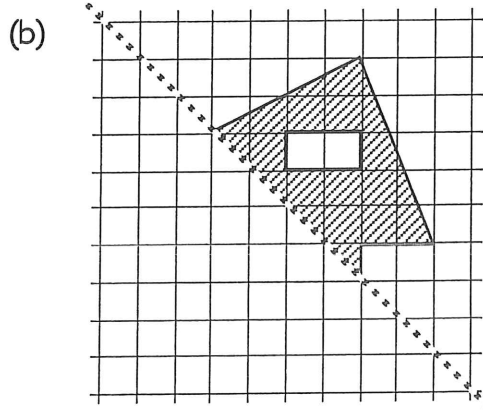
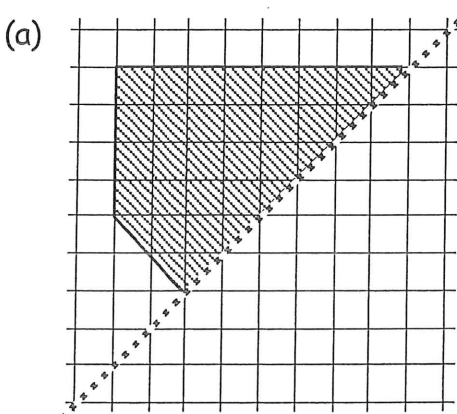
1. Copy each of the following shapes neatly onto squared paper, then complete each shape so that the DOTTED LINE is a line of symmetry :-



2. Copy each of these shapes and complete each shape so that the DOTTED LINE is a line of symmetry :-

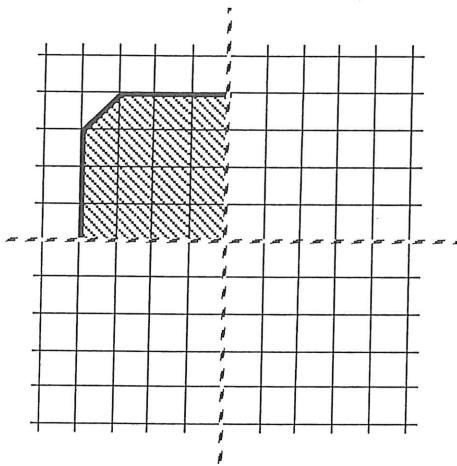


3. Copy and draw the other half of the following symmetrical shapes :-

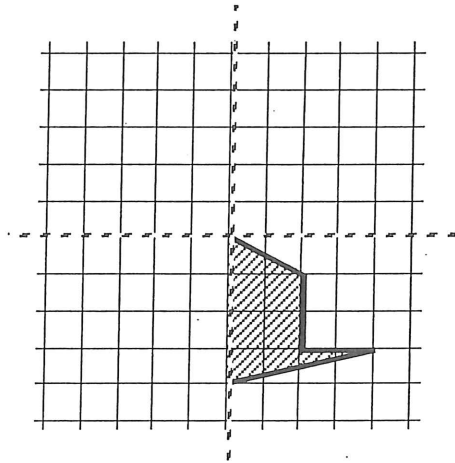


4. Each shape here has 2 lines of symmetry, shown as dotted lines.
Copy and draw the other 3 parts of each shape.

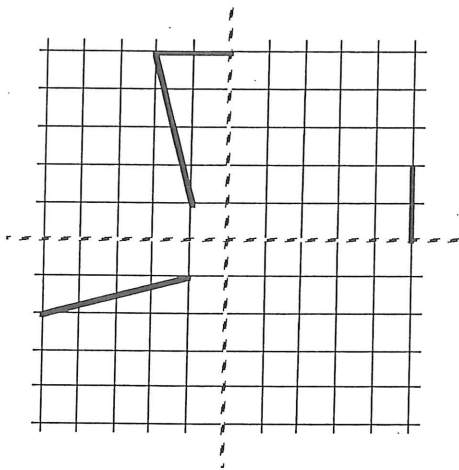
(a)



(b)



(c)



(d)

