

Cumbernauld Academy

Mathematics Department



3<sup>rd</sup> Level Core

Block 1 - homework booklet

**MNU 3-01a: I can round a number using an appropriate degree of accuracy, having taken into account the context of the problem.**

### Exercise 1

- Round to the nearest 10 :-  
(a) 71                      (b) 78                      (c) 129                      (d) 1995.
- Round to the nearest 100 :-  
(a) 291                      (b) 78                      (c) 781                      (d) 23 559.
- Round to the nearest 1000 :-  
(a) 4500                      (b) 7299                      (c) 18 901                      (d) 1 234 567.
- A fossil was discovered and was carbon dated at 127 891 years old. Round this figure to the nearest :-  
(a) 10                      (b) 100                      (c) 10 000                      (d) 100 000.

### Exercise 2

- By rounding each number to 1 figure accuracy, find an estimate to each of the following :-  
(a)  $59 \times 19$                       (b)  $402 \times 99$                       (c)  $379 \times 320$   
(d)  $794 \div 38$                       (e)  $512 \div 22$                       (f)  $1961 \div 197$
- Nineteen houses in a street each use 311 litres of water every day.  
Approximately how many litres of water is this altogether ?
- The number of termites found in 196 mounds was 131 089.  
Approximately how many on average would each mound have ?



### Exercise 3

- When each of the following numbers is rounded to 1 decimal place, which of the two values in the brackets is the correct answer :-  
(a) 3.26    (3.2 or 3.3) ?                      (b) 1.38    (1.3 or 1.4) ?                      (c) 7.05    (7.0 or 7.1) ?  
(d) 18.91    (18.9 or 19.0) ?                      (e) 21.95    (21.9 or 22.0) ?                      (f) 0.04    (0.0 or 0.1) ?
- Copy and complete, rounding each number to 1 decimal place :-  
(a) 3.87129  $\rightarrow$  3...                      (b) 4.119999  $\rightarrow$  ...                      (c) 8.29001  $\rightarrow$  ...  
(d) 0.05012  $\rightarrow$  ...                      (e) 5.909999  $\rightarrow$  ...                      (f) 9.95078  $\rightarrow$  ...
- Write down the answer to the following, correct to 1 decimal place :-  
(a)  $11 \div 7$                       (b)  $30 \div 9$                       (c)  $0.91 \div 4$                       (d)  $33 \div 34$                       (e)  $1 \div 6$
- Round these numbers to 2 decimal places :-  
(a) 3.46528                      (b) 5.97764                      (c) 2.31792  
(d) 6.37499                      (e) 8.41584                      (f) 7.04808

5. Change these fractions to decimals and round the answers to 2 decimal places :-

(a)  $\frac{7}{13} = (7 \div 13) = \underline{0.538461\dots} = 0.\dots$  (to 2 decimal places)

(b)  $\frac{5}{11} = (5 \div 11) = 0.$

(c)  $\frac{10}{23} = (10 \div \dots) =$

(d)  $\frac{3}{7} =$



**MNU 3-03a:** I can use a variety of methods to solve number problems in familiar contexts, clearly communicating my processes and solutions.

**MNU 3-03b:** I can continue to recall number facts quickly and use them accurately when making calculations.

### Exercise 1

1. Write the following numbers in words :-

- (a) 3040                      (b) 5801                      (c) 20 300                      (d) 40 050                      (e) 10 010 010.

2. Write the following numbers out fully using digits :-

- (a) sixteen thousand and one                      (b) Eight hundred thousand and eighty  
(c) ten million, one hundred thousand                      (d) one hundred million and ten.

3. Write out in figures :-

- (a) 100 million                      (b) 0.5 million                      (c) 3.5 million                      (d) 0.8 million.

4. What does the 2 represent in each of these numbers :-

- (a) 12.789                      (b) 5.203                      (c) 89.542                      (d) 0.1273                      (e) 0.9123 ?

5. Put the following sets of numbers in order, highest first :-

- (a) 9048, 9090, 8999, 10 010                      (b) 10 999, 11 001, 9999, 10 090, 10 100, 100 000.

6. Arrange the following groups of numbers in order, largest first :-

- (a) 0.5, 0.09, 0.14, 1.09, 0.091.  
(b) 1.003, 0.904, 0.409, 1.099, 1.1, 0.801.

7. What number lies half-way between :-

- (a) 10 000 and 15 000                      (b) 8500 and 10 000 ?

8. What number lies half way between :-

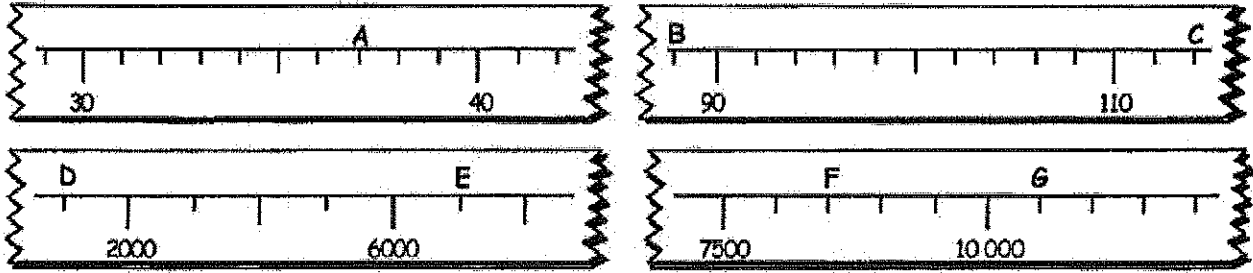
- (a) 0.12 and 0.18                      (b) 1.401 and 1.391                      (c) 2.315 and 2.325

9. What number is :-

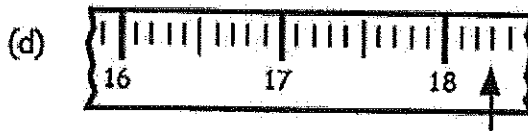
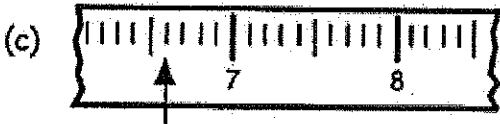
- (a)  $\frac{3}{10}$  up from 2.4                      (b)  $\frac{8}{100}$  down from 5.71                      (c)  $\frac{3}{1000}$  up from 2.475 ?

## Exercise 2

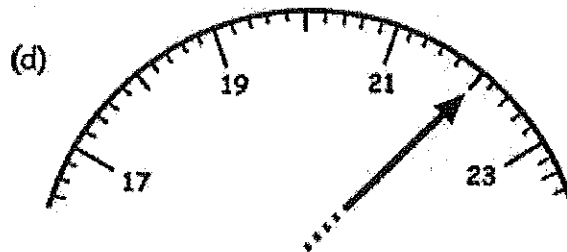
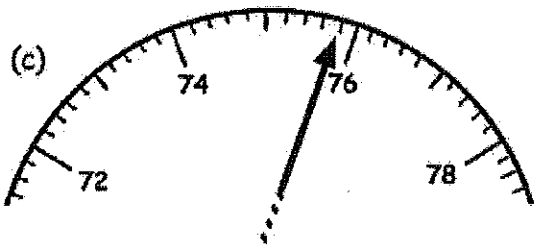
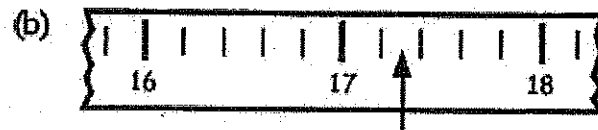
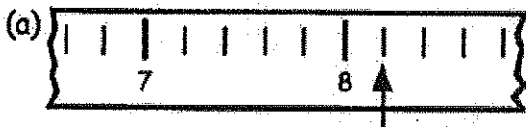
1. Look at the following scales. What numbers are represented by the letters A, B, C, ...



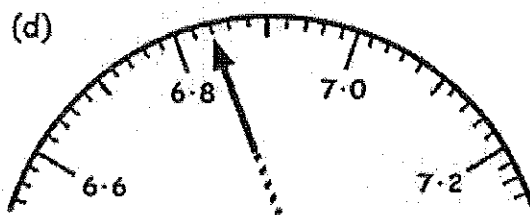
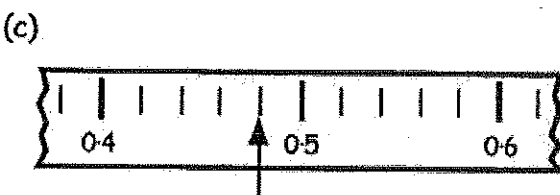
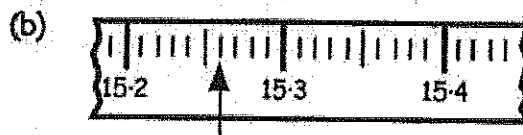
2. State what number each of these arrows is pointing to :-



3. Be careful here. Say what number each of these arrows is pointing to :-



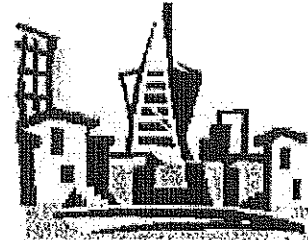
4. State what number each of these arrows is pointing to :-



### Exercise 3

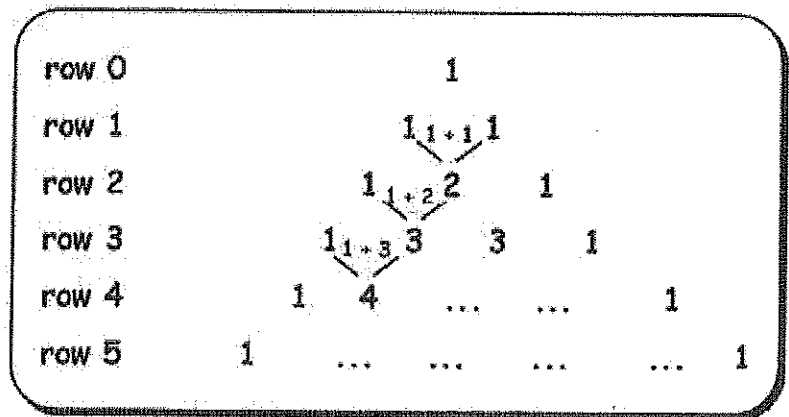
1. Do the following mentally :-

- (a) A train carrying 84 passengers stops at a station and 27 get off the train. How many passengers are still on the train?
- (b) One hundred and ninety two passengers disembark from an aeroplane. If there are two hundred and seventeen passengers still on board, how many passengers were originally on the plane?
- (c) The population of Aylesbury is 48 700. The population of Bracknell is 57 500.
  - (i) Find the total population of both towns.
  - (ii) How many more people live in Bracknell than Aylesbury?



2. The population of Cederton is 40 000. Of this population there are 16 500 men, 14 800 women and the rest are children. How many children live in Cederton?

3. In Pascal's triangle the number 1 appears at the top and at each end of subsequent rows as shown. To find a number inside the triangle add the two numbers above it.



- (a) Copy and complete the triangle up to row 5.
- (b) Continue the numbers up to row 10.

### Exercise 4

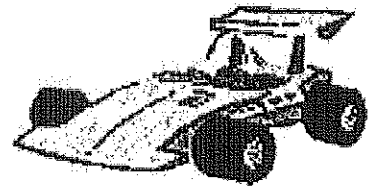
1. Do the following mentally :-

- (a)  $3.7 + 1.2$       (b)  $5.2 + 3.9$       (c)  $18.6 - 3.5$       (d)  $23.6 - 15.8$       (e)  $15.8 - 1.01$
- (f)  $5.9 - 4.09$       (g)  $0.96 - 0.4$       (h)  $54.8 - 8.91$       (i)  $0.4 - 0.17$       (j)  $12.1 - 7.84$

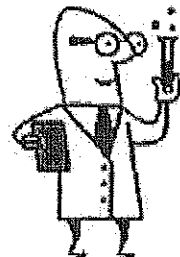
2. Copy and complete :-

- |   |   |   |  |
|---|---|---|--|
| (a) $\begin{array}{r} 47.5 \\ + 35.2 \\ \hline \end{array}$ | (b) $\begin{array}{r} 8.17 \\ + 5.96 \\ \hline \end{array}$ | (c) $\begin{array}{r} 1.38 \\ - 1.27 \\ \hline \end{array}$ | (d) $\begin{array}{r} 19.38 \\ - 9.89 \\ \hline \end{array}$ |
| (e) $22.4 + 9.9$  | (f) $4 - 2.3$   | (g) $11.7 - 3.45$   | (h) $5.8 - 4.92$   |

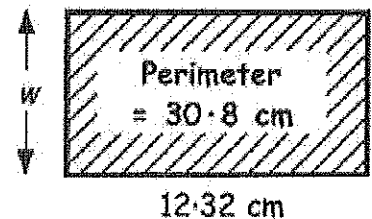
3. (a) A 3.4 kg bag of salt is added to a 1.9 kg bag.
- What is the total weight?
  - What is the difference in weight?
- (b) In a formula one race Neeson's track times were 21.7 and 22.56 secs.
- What was the combined time?
  - What was the difference in the times?



4. A scientist puts 3.9 ml of hydrochloric acid, 4.56 ml of acerbic acid and 9.65 ml of citric acid into a test tube.
- What is the total amount of acid in the test tube?
  - How much more citric than hydrochloric acid is there?



5. Perimeter is the total distance around the outside of a shape. A rectangle has length 12.32 cm and perimeter of 30.8 cm. Find the width of the rectangle (show all your working).



### Exercise 5

1. Copy the following and complete the calculation :-

$$\begin{array}{r} (a) \quad 571 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} (b) \quad 435 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} (c) \quad 708 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} (d) \quad 5555 \\ \times 8 \\ \hline \end{array}$$

Rewrite each of these in the above form and complete the calculation :-

$$(a) \quad 207 \times 6$$

$$(b) \quad 824 \times 8$$

$$(c) \quad 1057 \times 4$$

$$(d) \quad 5 \times 888$$

2. Set down and complete :-

$$\begin{array}{r} (a) \quad 248 \\ \times 26 \\ \hline \dots\dots\dots \\ \dots\dots\dots 0 \\ \hline \dots\dots\dots \end{array}$$

$$\begin{array}{r} (b) \quad 546 \\ \times 59 \\ \hline \dots\dots\dots \\ \dots\dots\dots 0 \\ \hline \dots\dots\dots \end{array}$$

$$\begin{array}{r} (c) \quad 704 \\ \times 72 \\ \hline \dots\dots\dots \\ \dots\dots\dots \\ \hline \dots\dots\dots \end{array}$$

$$\begin{array}{r} (d) \quad 555 \\ \times 55 \\ \hline \dots\dots\dots \\ \dots\dots\dots \\ \hline \dots\dots\dots \end{array}$$

3. Copy the following and complete the calculation :-

$$(a) \quad 7 \overline{)3808}$$

$$(b) \quad 5 \overline{)9265}$$

$$(c) \quad 6 \overline{)7434}$$

$$(d) \quad 8 \overline{)5216}$$

4. Set down in the manner shown above and complete the calculation :-

$$(a) \quad 7273 \div 7$$

$$(b) \quad 5175 \div 9$$

$$(c) \quad \frac{4506}{6}$$

$$(d) \quad \frac{6016}{8}$$

5. Show all your working in answering the following questions :-

- (a) Mrs. Brown is paid £1408 a month. How much would she earn in 9 months ?
- (b) How many hours are there in a week ?
- (c) How many seconds are there in 4 hours ?
- (d) Find  $8 \times 4 \times 56$ .

6. Show all your working in answering the following questions :-

- (a) How many weeks are there in 343 days ?
- (b) Golf balls are packed with 6 in each box.  
How many boxes are needed for 258 balls ?
- (c) A nine hole golf course has length 1971 yards.  
Find the average length of each hole.
- (d) A pack of golf tees contains 8 tees.  
How many packs are needed for 2248 tees ?



### Exercise 6

1. Write down the answers to the following :-

(a) 
$$\begin{array}{r} 4.34 \\ \times 4 \\ \hline \end{array}$$

(b) 
$$\begin{array}{r} 8.27 \\ \times 7 \\ \hline \end{array}$$

(c) 
$$\begin{array}{r} 8.78 \\ \times 6 \\ \hline \end{array}$$

(d) 
$$\begin{array}{r} 119.38 \\ \times 9 \\ \hline \end{array}$$

(e)  $5.7 \times 8$

(f)  $42.3 \times 4$

(g)  $135.9 \times 5$

(h)  $7 \times 37.521$

2. Show all your working to the following questions :-

- (a) Fred the monkey eats 3.74 kg of food every day.

What is the weight of food Fred will eat in :-

- (i) 3 days      (ii) a week ?



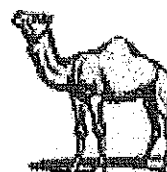
- (b) Boris the zoo keeper gets paid £7.84 an hour.

How much will Boris earn in :-

- (i) 4 hours      (ii) 9 hours ?

- (c) Kevin the Camel eats six 3.71 kg boxes of dates every month.  
Karen the Camel eats five 4.09 kg boxes.

Who eats more and by how much ?



3. Copy and complete the following :-

(a)  $2 \overline{)37.16}$

(b)  $6 \overline{)91.44}$

(c)  $7 \overline{)41.79}$

(d)  $8 \overline{)129.12}$

4. Find :-

(a)  $35.7 \div 7$

(b)  $57.06 \div 6$

(c)  $0.072 \div 8$

5. Show all your working for the following questions :-

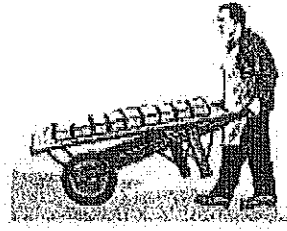
(a) Nine bricks have a total length of 2.61 metres.

What is the length of 1 brick ?

(b) Three kegs of beer hold 3072.6 litres.

How much beer does one keg hold ?

- (c) Find :-
- |                       |                       |
|-----------------------|-----------------------|
| (i) a third of 19.8   | (ii) a ninth of 51.66 |
| (iii) a sixth of 6.06 | (iv) a fifth of 0.7   |

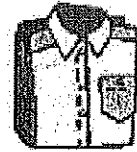


6. Two shops sell identical shirts.

Shop A sells three shirts for a total cost of £8.79.

Shop B sells five shirts for a total cost of £14.75.

Which shop has the best deal ? Explain.



### Exercise 7

1. Write down the answers to the following :-

- |                       |                        |                        |                        |
|-----------------------|------------------------|------------------------|------------------------|
| (a) $22 \times 10$    | (b) $10 \times 39$     | (c) $104 \times 10$    | (d) $10 \times 340$    |
| (e) $2020 \times 10$  | (f) $34 \times 100$    | (g) $100 \times 40$    | (h) $101 \times 100$   |
| (i) $2010 \times 100$ | (j) $8100 \times 100$  | (k) $21 \times 1000$   | (l) $1000 \times 70$   |
| (m) $200 \times 1000$ | (n) $3050 \times 1000$ | (o) $1000 \times 1000$ | (p) $5000 \times 1000$ |

2. There are 1000 ml (millilitres) in 1 litre.

- How many ml in :-
- |                |                |                   |
|----------------|----------------|-------------------|
| (a) 4 litres   | (b) 30 litres  | (c) 12 litres     |
| (d) 150 litres | (e) 100 litres | (f) 1000 litres ? |

3. Write down the answers to the following :-

- |                           |                          |                       |                         |
|---------------------------|--------------------------|-----------------------|-------------------------|
| (a) $20 \div 10$          | (b) $300 \div 10$        | (c) $14\,000 \div 10$ | (d) $200\,000 \div 10$  |
| (e) $1\,000\,000 \div 10$ | (f) $400 \div 100$       | (g) $8000 \div 100$   | (h) $5400 \div 100$     |
| (i) $99\,000 \div 100$    | (j) $120\,400 \div 100$  | (k) $8000 \div 1000$  | (l) $42\,000 \div 1000$ |
| (m) $870\,000 \div 1000$  | (n) $909\,000 \div 1000$ | (o) $1000 \div 1000$  |                         |

4. There are 1000 ml (millilitres) in a litre.

- How many litres in :-
- |               |                |                    |
|---------------|----------------|--------------------|
| (a) 50 000 ml | (b) 100 000 ml | (c) a million ml ? |
|---------------|----------------|--------------------|

### Exercise 8

1. Write down the answers to the following :-

- |                     |                     |                      |                       |
|---------------------|---------------------|----------------------|-----------------------|
| (a) $8.4 \times 10$ | (b) $9.8 \times 10$ | (c) $7.62 \times 10$ | (d) $18.71 \times 10$ |
|---------------------|---------------------|----------------------|-----------------------|



- (e)  $6.41 \times 100$       (f)  $0.91 \times 100$       (g)  $4.021 \times 100$       (h)  $0.0054 \times 100$   
 (i)  $5.213 \times 1000$       (j)  $0.8765 \times 1000$       (k)  $1.0041 \times 1000$       (l)  $4.2 \times 1000$

2. A crate weighs 47.62 kg. What would be the weight of :-

- (a) 10 crates      (b) 100 crates      (c) 1000 crates      (d) 10 000 crates ?

3. There are 1000 millilitres in a litre. How many millilitres are there in :-

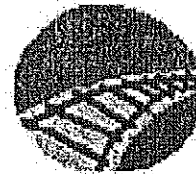
- (a) 5 litres      (b) 7.62 litres      (c) 0.0415 litres      (d) 0.01 litres ?

4. Write down the answers to the following :-

- (a)  $28.6 \div 10$       (b)  $19.8 \div 10$       (c)  $7.62 \div 10$       (d)  $187.1 \div 10$   
 (e)  $64.1 \div 100$       (f)  $10.91 \div 100$       (g)  $4.2 \div 100$       (h)  $0.54 \div 100$   
 (i)  $521.3 \div 1000$       (j)  $0.8 \div 1000$       (k)  $1.004 \div 1000$       (l)  $9 \div 1000$

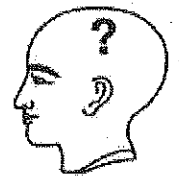
5. The length of 100 sections of railway track is 412.6 metres long.

- (a) What is the length of each section in metres ?  
 (b) Change your answer to centimetres.



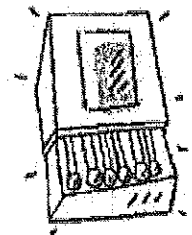
6. Try to do the following mentally :-

- (a)  $32 \times 30$       (b)  $41 \times 60$       (c)  $50 \times 321$       (d)  $404 \times 90$   
 (e)  $12 \times 300$       (f)  $42 \times 400$       (g)  $500 \times 21$       (h)  $800 \times 312$   
 (i)  $9021 \times 30$       (j)  $312 \times 7000$       (k)  $2000 \div 20$       (l)  $4400 \div 400$   
 (m)  $80\ 400 \div 200$       (n)  $1\ \text{million} \div 2000$       (o)  $10\ \text{million} \div 50\ 000$



7. A box contains 50 matches.

How many matches are in :- (a) 50 boxes      (b) 231 boxes ?



8. 34 200 marbles are stored equally amongst 200 jars.

How many marbles will be in each jar ?

9. A jar hold 340 sweets. A box hold 20 jars. A crate holds 30 boxes.

How many sweets would there be in 20 crates ?



10.

(a) A fishing trip company stocks 320 jars of worms. Each jar contains 30 worms.

How many worms in total does the company stock ?

(b) On a fish farm 24 000 fish are kept in 30 tanks.

If each tank has the same number of fish, how many fish are in each tank ?



**MNU 3-21b: I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology**

**Exercise 1**

1. The time taken for each music track at the disco was as follows (in minutes) :-

11 8 12 13 7 11 12 13 12 10 10  
9 10 10 11 9 10 11 8 8 9 8



Organise the data into a frequency table.

2. The vowels in the first paragraph of a book were counted to see which was most frequent.

Make a frequency table and bar graph to display the data.

A E A E I O U A E E E E E E  
U I A E A E I O U A E E E E E  
E E U I A E A E I O U A E E E  
E E E E E E U I A A O E O E

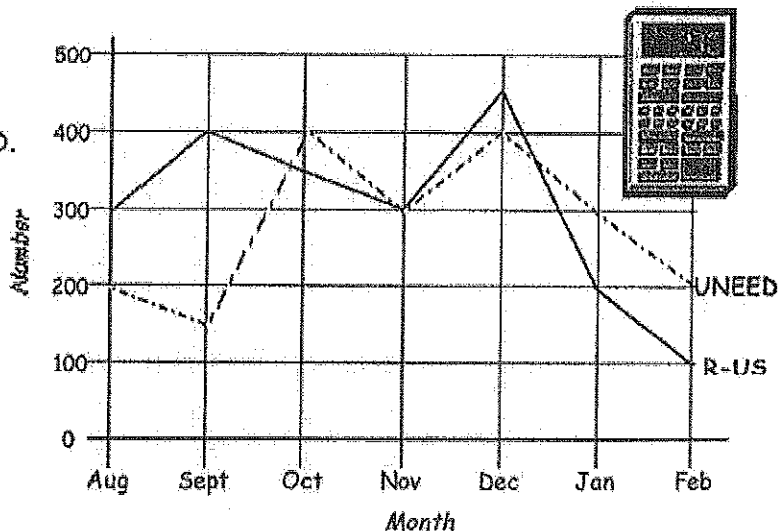
**Exercise 2**

1. The comparative line graph shows the sales of calculators from two different companies CALC-R-US and CALCU-NEED.

(a) How many calculators did CALCU-NEED sell in :-

- (i) August
- (ii) September
- (iii) January ?

(b) One company had a big advertising campaign between September and October. Which company ?



2. The monthly computer sales of three separate companies are as shown.

Draw a comparative line graph showing the sales information of the three companies and make a comment about how the sales vary month by month.

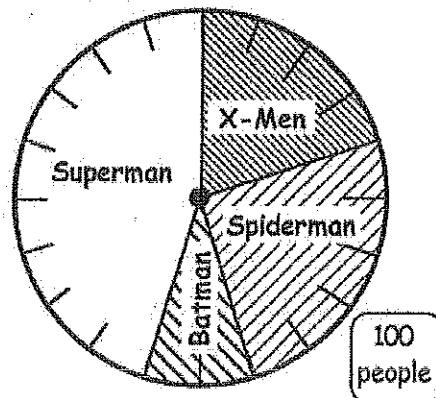
	Jan	Feb	Mar	Apr	May	Jun
JDK	100	200	300	200	300	400
IPS	300	250	150	200	400	450
HB	350	500	400	250	300	325

**Exercise 3**

1. 100 people were asked their favourite comic book.

How many people chose :-

- (i) Superman
- (ii) X-Men
- (iii) Spiderman
- (iv) Batman ?



2. This pie chart shows this year's senior school disco attendance.

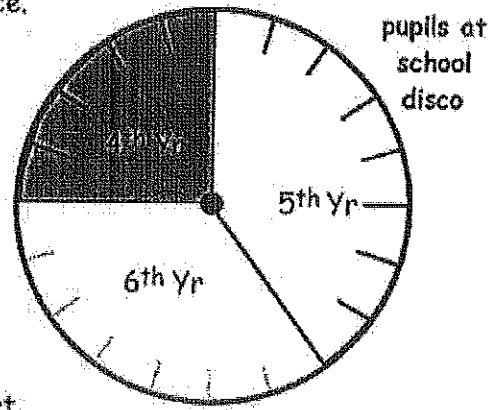
- (a) What percentage of the pupils were :-  
 (i) 4th year (ii) 5th year (iii) 6th year ?

(b) If 480 pupils attended the disco, write how many from each year group there were.

(c) Last year, of the 480 in attendance half were 6th year, an fifth were 4th year and the rest were 5th year.

Copy or trace the outline of this pie chart.

Show last years disco attendance figures on your pie chart.



### Exercise 4E

1. Find the MEAN and the RANGE of the following :-

- (a) 2, 3, 6, 5, 2, 9, and 8                      (b) 41, 37, 53, and 45  
 (c) 13, 12, 12, 18, 14 and 15                (d) 3.1, 2.5, 3.6, 3.4 and 3.9.

2. Josh is a computer games whiz kid.

He completed each level of DEATHGAME in the following times (in minutes) :-

8.6, 9.5, 8.8, 7.9, 10.1, 8.9, 8.1, 8.3 and 9.

3. What was his mean time per level ?

The mean weight of 3 boys is 37 kg. Andy weighs 36 kg, Bill weighs 34 kg.

Calculate the weight of Colin.



**MNU 3-22a: I can find the probability of a simple event happening and explain why the consequences of the event, as well as its probability, should be considered when making choices**

### Exercise 1

1. In a race, 6 of the horses are male and the other 12 are female.

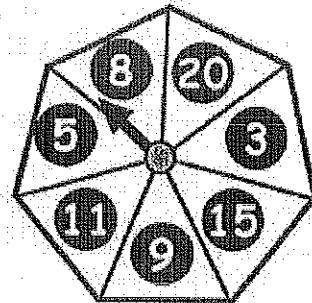
If a horse's name is chosen at random, what is the probability

- (a) it will be male ?            (b) it will be female ?

2. This 7-sided spinner is spun and the number noted.

Calculate, as a fraction, the probability it will point to :-

- (a) the number 11,  $P(11)$     (b) an EVEN number,  $P(\text{even})$   
 (c) a MULTIPLE of 3        (d) the number 7 ?



3. The probability it will rain this week-end is  $\frac{3}{10}$ .

What is the probability it will not rain this week-end.