

S4 National 4 Block Test Revision Booklet



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Basic Skills

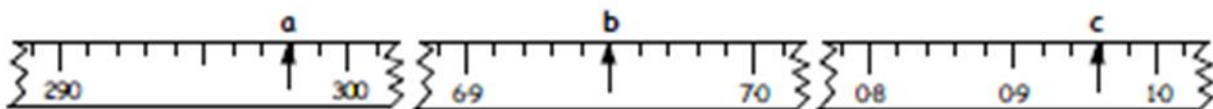
1. Round to the nearest 1000 :- a 17499 b 139800.
2. Copy :- The answer to $12874 + 6790$ is about $13000 + \dots\dots$ which equals $\dots\dots$.
3. Write the number that comes :- a 300 after 9700 b 500 before 13100
4. Write the number 620010 in words.
5. Find the following :-
- | | | | | | | | |
|---|--|---|----------------|---|--|---|------------------|
| a | $\begin{array}{r} 2790 \\ + 860 \\ \hline \end{array}$ | b | $24884 + 7608$ | c | $\begin{array}{r} 6000 \\ - 258 \\ \hline \end{array}$ | d | $22080 - 7592$. |
|---|--|---|----------------|---|--|---|------------------|

6. Find the following :-
- | | | | | | | | |
|---|---|---|------------------|---|---|---|------------------|
| a | $\begin{array}{r} 4023 \\ \times 6 \\ \hline \end{array}$ | b | 13090×9 | c | $\begin{array}{r} 7 \overline{)6594} \end{array}$ | d | $53568 \div 8$. |
|---|---|---|------------------|---|---|---|------------------|

7. 6 identical bottles hold 2730 millilitres.
How much does 1 bottle hold?



8. To what numbers do these arrows point?



9. Write down the answers to the following :-
- | | | | | | | | |
|---|-------------------|---|-------------------|---|-------------------|---|----------------------|
| a | 406×1000 | b | $503200 \div 100$ | c | 322×3000 | d | $9640000 \div 400$. |
|---|-------------------|---|-------------------|---|-------------------|---|----------------------|
10. I am thinking of a number.
When I multiply it by 40 and add on 1000 the answer is 4200.
What was the number I was thinking of?



11. Round :-
- | | |
|---|-------------------------------------|
| a | 209.555 to the nearest whole number |
| b | 0.076 to 1 decimal place. |
| c | 13.8986 to 2 decimal places. |
12. Do the following :-
- | | | | | | | | |
|---|---------------|---|-----------------|---|-----------------|---|------------------|
| a | $27.6 + 4.85$ | b | $230.71 - 45.9$ | c | 6.09×8 | d | $41.28 \div 3$. |
|---|---------------|---|-----------------|---|-----------------|---|------------------|

Solutions

1. a 17000 b 140000
2. $13000 + 7000 = 20000$
3. a 10000 b 12600
4. six hundred and twenty thousand and ten
5. a 3650 b 32492 c 5742 d 14488
6. a 24138 b 117810 c 942 d 6696
7. 455 nl
8. a 298 b 6.95 c 0.96
9. a 406000 b 5032 c 966000 d 24100
10. 80
11. a 210 b 0.1 c 13.90
12. a 32.45 b 184.81 c 48.72 d 13.76

Algebra

Exercise 2

Breaking Brackets

1. Multiply out each bracket :-

a $3(x + 4)$

b $7(y - 3)$

c $5(2k + 5)$

d $11(6y - 7)$

e $y(y + 2)$

f $k(k - 3)$

g $u(3u + 4)$

h $3r(3r - 4)$

i $-3(g + 5)$

j $-4(2t + 6)$

k $-5(j - 2)$

l $-2(3f - 8)$

m $-y(y + 7)$

n $-h(h - 3)$

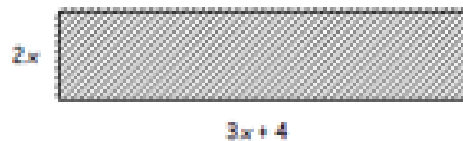
o $-2w(2w + 1)$

p $-5k(3 - 4k)$

2. Write down the area and perimeter of this rectangle :-

a using brackets

b without brackets.



Exercise 3

Breaking Brackets and Simplifying

1. Multiply out the brackets and simplify fully where necessary :-

a $5(k + 2) + 3$

b $8(2y + 4) - 12$

c $7(3e - 2) + 11$

d $8 + 2(t + 3)$

e $11 - 3(3 + w)$

f $15 - (g + 15)$

g $3(w - 1) + 2(w + 1)$

h $4(2y - 3) + 5(4y + 3)$

i $2(4r + 3) - 6$

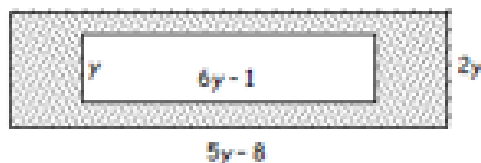
j $3w - (w + 4) + 2(2 - w)$

k $4(3y + 4) - 2(5y - 1) - 18$

l $3p + 2(4p - 6) - (9p + 12)$

m $5(3 - 2m) + 3(2m - 6) - 4(1 - 8m) + 2m + 7$

2. Calculate the shaded area of the rectangle shown, in terms of y .



Algebra

Exercise 1

Solving Equations



1. Copy each equation and solve to find the value of x :-

a $x + 6 = 11$

b $x + 1 = 23$

c $x + 7 = 6$

d $x + 14 = 14$

e $x - 7 = 8$

f $x - 3 = 2$

g $13 + x = 17$

h $9 + x = 7$

i $17 - x = -17$.

2. Copy each equation and solve to find the value of the letter :-

a $4x = 12$

b $5p = 35$

c $6k = 24$

d $3h = 33$

e $4g = 56$

f $7n = 0$

g $4m = 144$

h $6c = 9$

i $8d = 1$.

3. Find the value of x in the following equations (*Set down ALL your working*).

a $2x + 6 = 14$

b $5x + 4 = 29$

c $4x + 7 = 39$

d $3x + 1 = 31$

e $4x - 8 = 16$

f $7x - 11 = 3$

g $10x - 9 = 41$

h $3x - 6 = 0$

i $11x - 7 = 37$

j $6x - 3 = 12$

k $8x + 12 = 15$

l $9x + 1 = 43$.

Exercise 2

Harder Equations



1. Copy and complete :-

*(You may have been shown a different method)

a $8x + 1 = 6x + 17$
 $\Rightarrow 2x + 1 = \dots$
 $\Rightarrow 2x = \dots$
 $\Rightarrow x = \dots$

b $7x - 3 = x + 15$
 $\Rightarrow 7x - \dots = \dots$
 $\Rightarrow 7x = \dots$
 $\Rightarrow x = \dots$

2. Solve these equations :-

a $5x + 4 = 2x + 19$

b $3x + 7 = x + 11$

c $8x + 6 = 7x + 22$

d $4x - 5 = x + 16$

e $11x - 1 = 2x + 17$

f $6x - 4 = 4x + 23$.

3. These equations are a little "different". Solve :-

a $5x = 4x + 3$

b $3x = x + 44$

c $7x = 4x + 42$

d $12x = 8x + 1$

e $15x = 3x + 18$

f $6x - 2 = 8x$.

4. Joe bought 5 bags of marbles. Harry bought 3 bags, but he already had 20 loose marbles. They then had exactly the same number of marbles.

a Make up an equation to show this information.

b Solve the equation to determine how many marbles there are in a bag.



Solutions

Exercise 2 - Breaking Brackets

1. a $3x + 12$ b $7y - 21$
c $10k + 25$ d $66y - 77$
e $y^2 + 2y$ f $k^2 - 3k$
g $3u^2 + 12u$ h $9r^2 - 12r$
i $-3q - 15$ j $-8t - 24$
k $-5j + 10$ l $-6f + 16$
m $-y^2 - 7y$ n $-h^2 + 3h$
o $-4w^2 - 2w$ p $-15k + 20k^2$

2. a $A = 2x(3x + 4)$ b $A = 6x^2 + 8x$

Exercise 3 - Breaking Brackets & Simplifying

1. a $5k + 13$ b $16y + 20$ c $21e - 3$
d $2t + 14$ e $2 - 3w$ f $-g$
g $5w - 1$ h $28y + 3$ i $8r$
j 0 k $2y$
l $2p - 24$ m $30m$
2. $A = 2y(5y - 8) - y(6y - 1) = 10y^2 - 16y - 6y^2 + y$
 $A = 4y^2 - 15y$

Solutions

Ch 5 Ex 1 Solving Equations

1.	a	5	b	22	c	-1
	d	0	e	15	f	5
	g	4	h	-2	i	34
2.	e	3	b	7	c	4
	d	11	e	14	f	0
	g	36	h	$\frac{3}{2}$	i	$\frac{1}{8}$
3.	e	4	b	5	c	8
	d	10	e	6	f	2
	g	5	h	2	i	4
	j	$\frac{16}{6} = 2\frac{2}{3}$	k	$\frac{3}{8}$		
	l	$\frac{42}{9} = \frac{14}{3} = 4\frac{2}{3}$				

Ch 5 Ex 2 Harder Equations

1.	a	8	b	3		
2.	a	5	b	2	c	16
	d	7	e	2	f	$\frac{27}{2}$
3.	a	3	b	22	c	14
	d	$\frac{1}{4}$	e	$\frac{18}{12} = 1\frac{1}{2}$	f	-1
4.	a	$5x = 3x + 20$	b	10		

Substitution

Exercise 6

Evaluating Expressions and Formulae

1. Given $a = 2$, find :-

a $a + 6$

b $2a$

c $5a - 3$

d $(7a + 4) \div 2$

e $4(a + 2)$

f $6(11 - a) - 53$

g $3(a + 1) - 12$

h $5(a + 2) + 15$

i $3(a - 11) + 27$.

2. Given $b = 3$, $c = 5$ and $d = -1$, evaluate :-

a $b + c + d$

b $2b - c - 3d$

c $\frac{1}{2}(bc + d)$

d $3bcd$

e $cdb - dbc$

f $0.5(bd - cd)$.

3. a If $f = 2$, $g = 4$ and $h = -2$, find e , given $f + g + h + e = 10$.

b If $p = 3$, $r = -3$ and $s = 2$, find t given $st - prs = 12$.

4. If $m = 4$ and $n = 6$, find the values of :-

a m^2

b n^2

c \sqrt{m}

d $m^2 + n^2$

e $2m^2$

f $3mn^2$

g $\sqrt{mn + 1}$

h $\sqrt{5m - 2n + 1}$

i $\sqrt{m^2 + n^2 - 3}$.

Solutions

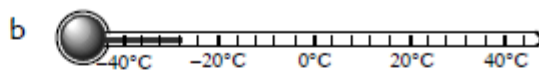
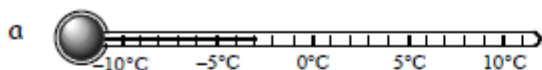
Exercise 6 - Evaluating Expressions and Formulae

- | | | | |
|----|-------|------|-------|
| 1. | a 8 | b 4 | c 7 |
| | d 9 | e 16 | f 1 |
| | g -3 | h 35 | i 0 |
| 2. | a 7 | b 4 | c 7 |
| | d -45 | e 0 | f 1 |
| 3. | a 6 | b -3 | |
| 4. | a 16 | b 36 | c 2 |
| | d 52 | e 32 | f 432 |
| | g 5 | h 3 | i 7 |

Integers

Exercise 9.3

1. Write down the temperature shown on each thermometer :-



2. a The temperature last night dropped from 3°C to -5°C .

By how many degrees did the temperature drop ?

- b Two hours ago the temperature read -1°C .

The temperature has risen by 8°C .

What is the new temperature ?



3. a My bank balance showed $-\text{£}35$. I withdrew $\text{£}25$. How much does my account now show ?

- b Ed's account shows $(-\text{£}3550)$. He deposits $\text{£}1650$. What does his account show now ?

4. Which integer is **halfway** between :-

a -12 and 14

b -11 and 13

c -111 and 113 .

Exercise 9.4

1. Write down the temperature that is :-

a 8°C down from 2°C

b 5°C up from -3°C

c 18°C down from -11°C .

2. 4°C is 6°C up from -2°C . Copy and complete :-

a 3°C is from -3°C

b 5°C is from -1°C

c -11°C is from -20°C

d -23°C is from -57°C .

3. A chemical freezing unit starts at -3°C and drops 8°C every hour.

What is the temperature after :-

a 3 hours

b 5 hours

c 8.5 hours ?

Integers

Exercise 9.5

1. Find :-

a $2 + (-1)$

d $(-1) + 3$

g $15 - 23$

j $(-3) - 1$

m $(-5) + (-5)$

p $(-2) + 4 - 6$

b $5 + (-4)$

e $(-3) + 6$

h $37 - 58$

k $(-12) - 5$

n $(-8) + (-3)$

q $(-1) + 1 + (-1)$

c $8 + (-3)$

f $(-9) + 3$

i $123 - 141$

l $(-56) - 23$

o $(-134) + (-156)$

r $(-23) + (-12) - 17$.

Exercise 9.6

1. Copy and complete :-

$$\begin{aligned} \text{a } 4 - (-2) \\ &= 4 + 2 \\ &= \dots \end{aligned}$$

$$\begin{aligned} \text{b } -3 - (-2) \\ &= -3 + 2 \\ &= \dots \end{aligned}$$

2. Find :-

a $3 - (-4)$

d $(-2) - (-1)$

g $(-23) - (-34)$

b $5 - (-7)$

e $(-6) - (-3)$

h $(-123) - (-234)$

c $12 - (-12)$

f $(-11) - (-12)$

i $(-100) - (-100) - 100$.

3. Find :-

a $(-1 \cdot 4) - (-2 \cdot 3)$

b $(-5 \cdot 7) - (-6 \cdot 8)$.

Exercise 9.7

1. Find :-

a $3 \times (-1)$

d $(-6) \times 3$

g $16 \div (-2)$

j $(-60) \div 6$

m $(-3) \times 2 \times 5$

b $5 \times (-3)$

e $(-5) \times 4$

h $24 \div (-3)$

k $(-124) \div 4$

n $3 \times (-1) \times 2$

c $8 \times (-8)$

f $(-7) \times 4$

i $45 \div (-5)$

l $(-312) \div 3$

o $6 \times 3 \times (-2)$.

Exercise 9.8

1. Find :-

a $(-2) \times (-3)$

d $(-3) \times (-3)$

g $(-12) \div (-4)$

j $(-23) \times (-30)$

b $(-5) \times (-3)$

e $(-7) \times (-6)$

h $(-15) \div (-5)$

k $(-250) \div (-50)$

c $(-8) \times (-1)$

f $(-9) \times (-9)$

i $(-100) \div (-20)$

l $(-12) \times (-3) \div 4$.

Answers

Exercise 9.3

- a -3°C b -28°C
- a 8°C b 7°C
- a $-\text{£}60$ b $-\text{£}1900$
- a 1 b 1 c 1

Exercise 9.4

- a -6°C b 2°C c -29°C
- a 6°C up b 6°C down c 9°C up d 34°C down
- a -27°C b -43°C c -71°C

Exercise 9.5

- a 1 b 1 c 5 d 2
e 3 f -6 g -8 h -21
i -18 j -4 k -17 l -79
m -10 n -11 o -290 p -4
q -1 r -52

Exercise 9.6

- a 6 b -1
- a 7 b 12 c 24 d -1
e -3 f 1 g 11 h 111
i -100
- a 0.9 b 1.1

Exercise 9.7

- a -3 b -15 c -64 d -18
e -20 f -28 g -8 h -8
i -9 j -10 k -31 l -104
m -30 n -6 o -36

Exercise 9.8

- a 6 b 15 c 8 d 9
e 42 f 81 g 3 h 3
i 5 j 690 k 5 l 9

Statistics

Exercise 13.1

- Find the **range** for each set of numbers :-
a 3, 5, 6, 6, 11, 22. b 4, 11, 56, 12, 9, 14. c 10, 0, 45, 32, 3.
- Write down the **mode** for each set of numbers :-
a 1, 3, 3, 4, 5, 7, 9. b 16, 23, 25, 46, 23, 61. c 3, 3, 7, 5, 6, 5, 5.
- Work out the **median** of each set of numbers :-
(Remember you might need to put them in order).
a 2, 5, 8, 9, 12, 14, 15. b 11, 14, 12, 17, 13. c 2, 7, 3, 4, 1, 1, 5, 8.
- Calculate the **mean** for each set of numbers in question 3.
- Calculate the **range, mean, median** and **mode** of this set of numbers :-
3, 5, 8, 11, 16, 20, 20, 30
- Mr. Francis has vitamin pill boxes. The labels read "average contents 54 pills". He opened 10 of the boxes and counted the contents of each box.
50, 52, 58, 57, 57, 48, 52, 54, 60, 52.
a Find the **mean, median** and **mode**.
b State whether the box's label is correct. Explain.



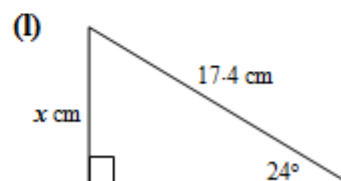
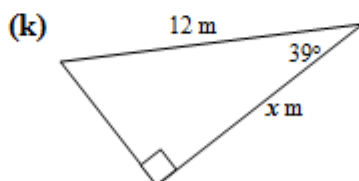
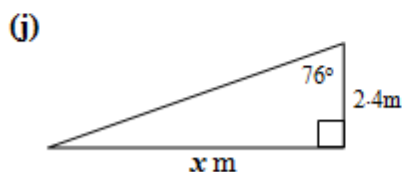
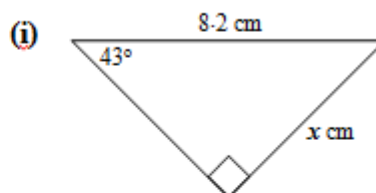
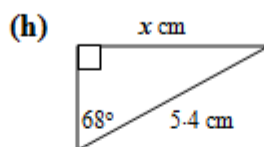
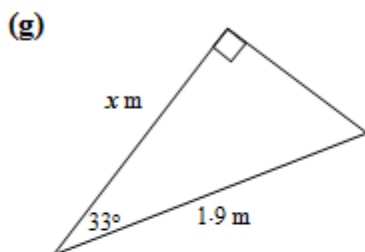
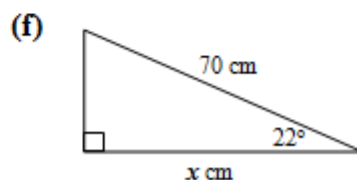
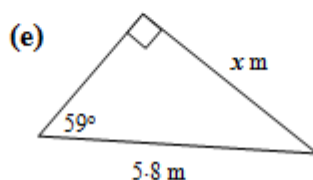
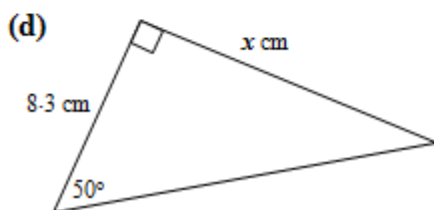
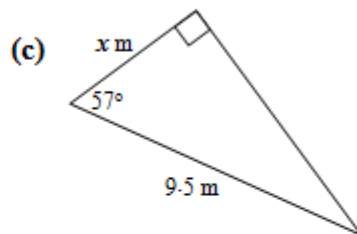
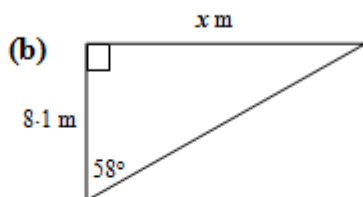
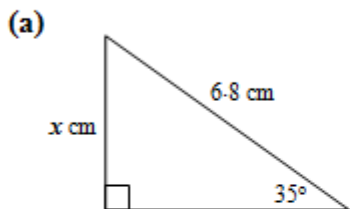
Answers

Exercise 13.1

1. a 19 b 52 c 45
2. a 3 b 23 c 5
3. a 9 b 13 c 3.5
4. a 9 b 13 c 4
5. range 27, mean 14, median 13.5, mode 20

Trigonometry- Mix

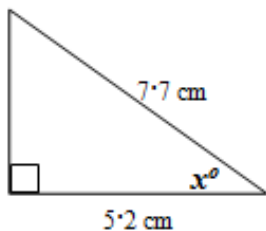
4. Calculate the length of the side marked x in these right-angled triangles. You will have to choose which ratio to use.



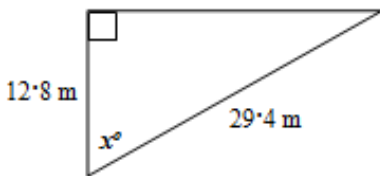
Trigonometry- Mix

4. Calculate the size of the angle marked x° in these right-angled triangles. You will have to choose which ratio to use.

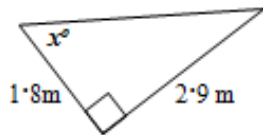
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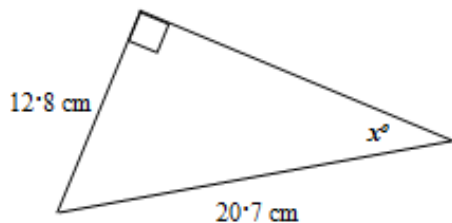
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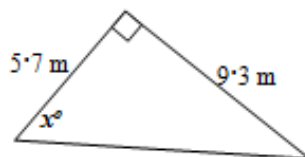
(c)



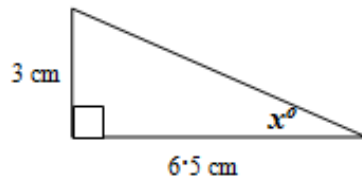
(d)



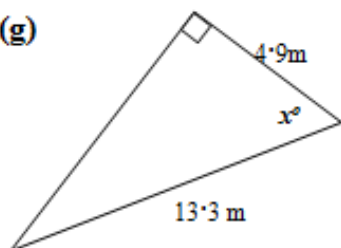
(e)



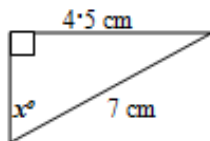
(f)



(g)



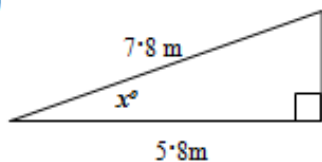
(h)



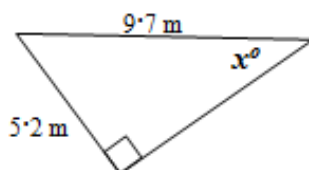
(i)



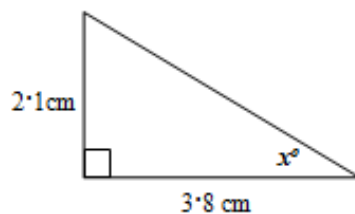
(j)



(k)



(l)



Solutions

4. (a) 3.9cm (b) 13m (c) 5.2m
 (d) 9.9cm (e) 5m (f) 64.9cm
 (g) 1.6m (h) 5cm (i) 5.6cm
 (j) 9.6m (k) 9.3m (l) 7.1cm
 (m) 26.5cm (n) 33.7m (o) 83.7mm

4. (a) 47.5° (b) 64.2° (c) 58.1°
 (d) 38.2° (e) 58.5° (f) 24.8°
 (g) 68.4° (h) 40° (i) 45°
 (j) 42° (k) 32.4° (l) 28.9°
 (m) 27.1° (n) 62° (o) 33.4°

Scientific Notation

Exercise 1



1. Copy and complete the following :-

$$\begin{aligned}39\,000 &= 3900 \times 10 = 390 \times \dots \times \dots = 39 \times \dots \times \dots \times \dots \\ &= 3.9 \times \dots \dots \dots \quad (\text{Stop here, since } 3.9 \text{ lies between } 1 \text{ and } 10). \\ &= 3.9 \times 10^4\end{aligned}$$

2. Using the same method as Qu 1., write the following numbers in scientific notation :-

- | | | |
|------------|------------|--------------|
| (a) 4800 | (b) 6780 | (c) 31000 |
| (d) 35200 | (e) 54350 | (f) 970000 |
| (g) 487000 | (h) 109100 | (i) 4400000. |

Exercise 2



1. Using the "quick" method, write the following numbers in scientific notation :-

- | | | |
|-----------|-------------|---------------|
| (a) 49000 | (b) 547000 | (c) 234000 |
| (d) 660 | (e) 1482 | (f) 9000 |
| (g) 70000 | (h) 1680000 | (i) 47300000. |

2. You have learned that :- $3 \text{ million} = 3\,000\,000 = 3.0 \times 10^6$
 $1.27 \text{ million} = 1\,270\,000 = 1.27 \times 10^6$



Write out each of the following in full, then write each in scientific notation :-

- | | | |
|---|-----------------------------|-----------------------------|
| (a) 7 million = 7000000 = 7.0×10^6 | | |
| (b) 2.5 million | (c) 9.19 million | (d) $4\frac{1}{2}$ million |
| (e) 17 million | (f) 27 million | (g) 2.8 million |
| (h) 1.97 million | (i) $12\frac{1}{2}$ million | (j) $15\frac{1}{2}$ million |
| (k) 5.714 million | (l) $5\frac{1}{4}$ million | (m) $6\frac{3}{4}$ million. |

Scientific Notation



Exercise 4



1. Write the following small numbers in scientific notation :-

- (a) 0.003 (b) 0.000074 (c) 0.0286 (d) 0.000006
(e) 0.000482 (f) 0.287 (g) 0.00393 (h) 0.00007.

2. Write the following numbers in full :-


- (a) 5.1×10^{-2} (b) 3.6×10^{-4} (c) 2.74×10^{-3} (d) 5.06×10^{-5}
(e) 3.2741×10^{-1} (f) 4×10^{-3} (g) 7×10^{-5} (h) 8.009×10^{-6} .

3. A box of toffees weighs 5.81×10^{-2} kilograms.

Is this more or less than 58 grams?



4. What small numbers are shown on the calculators below?

- (a)  (b)  (c) 

5. Write out in full :-

- (a) 4.2×10^{-2} (b) 7.8×10^6 (b) 8.01×10^{-4} (d) 9.021×10^3 .

6. Write in scientific notation :-

- (a) 0.003 (b) 5470 (c) 0.00039 (d) 21500000.

Answers

Exercise 1

- 3.9×10^4
- a 4.8×10^3 b 6.78×10^3
c 3.1×10^4 d 3.52×10^4
e 5.435×10^4 f 9.7×10^5
g 4.87×10^5 h 1.091×10^5
i 4.4×10^6

Exercise 2

- a 4.9×10^4 b 5.47×10^5
c 2.34×10^5 d 6.6×10^2
e 1.482×10^3 f 9×10^3
g 7×10^4 h 1.68×10^6
i 4.73×10^7

- a 7000000 7×10^6
b 2500000 2.5×10^6
c 9190000 9.19×10^6
d 4500000 4.5×10^6
e 17000000 1.7×10^7
f 27000000 2.7×10^7
g 2800000 2.8×10^6
h 1970000 1.97×10^6
i 12500000 1.2×10^7
j 15500000 1.55×10^7
k 5714000 5.714×10^6
l 5250000 5.25×10^6
m 6750000 6.75×10^6

Exercise 4

- a 3×10^{-3} a 7.4×10^{-5}
c 2.86×10^{-2} d 6×10^{-6}
e 4.82×10^{-4} f 2.87×10^{-1}
g 3.93×10^{-3} h 7×10^{-5}
- a 0.051 b 0.00036
c 0.00274 d 0.0000506
e 0.32741 f 0.004
g 0.00007 h 0.000008009
- More
- a 0.037 b 0.000709
c 0.01001
- a 0.042 b 7800000
c 0.000801 d 9021
- a 3×10^{-3} b 5.47×10^3
c 3.9×10^{-4} d 2.15×10^7


Financial Maths

Exercise 8.1



1. Charlene is a clerkess with a basic rate of pay of $\text{€}12.55$ per hour. How much does she get paid when she works a basic 36 hour week?
2. Gerry's payslip last week showed that he had worked for 42 hours. If he earned $\text{€}579.60$, what was his hourly rate?



3.  Rachel's monthly pay at the Oyster Bar is $\text{€}975$. Calculate her annual salary.

4. Donnie works as an apprentice blacksmith for 30 hours per week. His annual pay is $\text{€}17\,784$.
 - a How much does Donnie earn each week?
 - b Calculate his hourly rate.



Exercise 8.2




1. Trevor works for an electrical company earning $\text{€}17\,600$ per year. Last year, with the company doing well, Trevor received bonuses of $\text{€}206$ in April, $\text{€}387$ in August and $\text{€}529$ in November.
 - a Work out Trevor's total bonus money.
 - b What was his total pay for last year?

2. Mabel sells peanuts round her local neighbourhood to make some extra cash. She gets paid $\text{€}25$ per week plus 7 pence for each packet of nuts she sells. One week she sold 120 packets. How much did she earn in total that week?



3. Sid, a lawyer earning $\text{€}38\,000$ per year, received an annual salary increase of 2.5%. Calculate his new salary.

4.  Paul is a butler for Sir Hugh Laird and earns $\text{€}19\,500$ per year. When Paul asked for an 5% pay rise he was offered a rise of $\text{€}1000$. Find out how much Paul had asked for and decide whether or not he should accept Sir Hugh's offer.


Financial Maths

Exercise 8.3






1. A door to door salesman makes 4% commission on all sales.
Calculate how much he can make when he sells €850 worth of goods.
2. When Dana sold furniture worth €25000, she made commission at the rate of 12.5%.
How much did she make ?
3. Jacob is a car salesman, earning €1540 per month PLUS 3% commission on all second hand car sales.
Last month he sold €140000 worth of second hand cars.
a Calculate his commission. b Work out his total pay for the month.



4.  Miss Thomas sells cosmetics. She gets a basic €325 per week, plus 2% commission on all sales over €500.
Calculate her total wage for a week if she sells €750 worth of cosmetics.


Exercise 8.4



1. Peter is a fence painter and normally gets paid €10.50 per hour, but when he works overtime he gets paid double time.
Work out what Peter earns for 5 hours overtime. 
2.  Billy works on the railways for a basic rate of €12 per hour. Any overtime is paid at time and a half.
Work out what he would be paid if he were to work 8 hours overtime.
3. Charles the golf pro works overtime on a Tuesday night from 5 pm until 8 pm and on a Wednesday from 6.30 pm until 10.30 pm. His basic rate of pay is €18 per hour, but his overtime rate is double time.
a How many hours overtime does Charles work ?
b What does he get paid in total for the two nights ? 
4. Jenny repairs watches for a living. She works a 40 hour week for a basic rate of €9.20 per hour. She also works 4 hours on a Saturday at time and a half and 5 hours on a Sunday at double time.
Calculate Jenny's :-
a basic earnings, b earnings for a Saturday,
c earnings for a Sunday, d total pay for the week.

Solutions

Exercise 8.1

1. £451-80
2. £13-80
3. £11700
4.  b £11-40

Exercise 8.2

1. a £1122 b £18722
2. £33-40
3. £38950
4. Accept. (£25 more)

Exercise 8.3

1. £34
2. £3125
3. a £420 b £1960
4. £330

Exercise 8.4

1. £105
2. £144
3. a 7 hrs b £189
4. a £368 b £55-20 c £92 d £515-20

Probability

Exercise 8/9

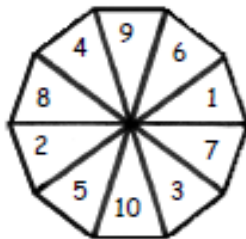


1. State the likelihood of each statement :-

- (a) All cars will be able to fly tomorrow.
- (b) If today is Monday, tomorrow will be Tuesday.
- (c) Toss a coin, it lands tails.
- (d) We will play outside next week during the P.E. class.



2.



A ten sided dice numbered 1 to 10 is thrown.
Find :-

- (a) $P(\text{even})$
- (b) $P(\text{less than } 3)$
- (c) $P(\text{prime})$
- (d) $P(\text{square number})$.

3. A toy box contains building bricks.

There are 3 green, 1 black, 9 blue, 12 orange, and 15 white bricks.

Find :-

- (a) $P(\text{green})$
- (b) $P(\text{blue})$
- (c) $P(\text{orange})$
- (d) $P(\text{white})$
- (e) $P(\text{black})$
- (f) $P(\text{not orange})$
- (g) $P(\text{white or blue})$
- (h) $P(\text{red})$.



4.



Paul and Peter each toss a coin and record the results.

Paul : H H T H T H H H T T H H T H T H T H H T T

Peter : H T H H T H H T T H T H

If the probability of heads to tails was the same for both boys, what were Peter's last two tosses ?

Probability

Exercise 8/9

- | | | | | | |
|---|-----------|-------|---|----------|-------|
| a | No Chance | 0 | b | Definite | 1 |
| c | 50/50 | $1/2$ | d | 50/50 | $1/2$ |
- | | | | | | | | |
|---|-------|---|-------|---|-------|---|--------|
| a | $1/2$ | b | $1/5$ | c | $2/5$ | d | $3/10$ |
|---|-------|---|-------|---|-------|---|--------|
- | | | | | | | | |
|---|--------|---|--------|---|--------|---|-------|
| a | $3/40$ | b | $9/40$ | c | $3/10$ | d | $3/8$ |
| e | $1/40$ | f | $7/10$ | g | $3/8$ | h | 0 |
- HT (or TH)

Scattergraphs

3. For each data set, construct a scattergraph and draw a line of best fit :-

(a)

Engine size (1000cc)	1.1	1.1	1.1	1.4	1.4	1.4	1.6	1.6	1.6	1.8	1.8	1.8	2.0	2.0
km / litre	50	60	55	50	40	45	40	30	35	35	25	30	30	20

(b)

Age (years)	5	6	6	7	7	8	9	9	9	10	10	10	11	11	12	12	12	12
Javelin throw (m)	4	5	6	7	5	6	6	8	9	11	12	9	10	11	14	18	15	12