KS3 Mathematics Homework

Pack D: Level 6

	Date	Title	Grade
1		Fractions – 1	
2		Fractions – 2	
3		Percentages – 1	
4		Percentages – 2	
5		Fractions, decimals and percentages – 1	
6		Fractions, decimals and percentages – 2	
7		Fractions, decimals and percentages – 3	
8		Fractions, decimals and percentages – 4	
9		Ratio – 1	
10		Ratio – 2	
11		Ratio – 3	
12		Scale	
13		Number patterns	
14		Rules: Equations	
15		Writing equations	
16		Trial and improvement – 1	
17		Trial and improvement – 2	
18		Drawing lines and graphs	
19		Intersecting and parallel lines	
20		Regular polygons	
21		Bearings	
22		2-D representation of 3-D shapes	
23		Properties of quadrilaterals and triangles	
24		Enlargement	
25		Areas and volumes	
26		Circumference and area of a circle	
27		Frequency tables and frequency graphs	
28		Scatter diagrams	
29		Drawing pie charts	
30		Probability	

1 Fractions – 1

You may use a calculator for these questions:

1	$3\frac{4}{5} + 1\frac{2}{3}$	1..... ☐
2	$6\frac{7}{8} - 1\frac{2}{5}$	2..... ☐
3	$4\frac{1}{3} - 2\frac{5}{8}$	3..... ☐
4	$4\frac{2}{3} \div 1\frac{2}{5}$	4..... ☐
5	$3\frac{3}{4} \div 1\frac{1}{2}$	5..... ☐
6	$2\frac{1}{3} \times 1\frac{3}{4}$	6..... ☐
7	$1\frac{1}{3} \times 1\frac{5}{8}$	7..... ☐
8	$2\frac{5}{16} + 1\frac{3}{7}$	8..... ☐
9	Find $\frac{3}{4}$ of 18	9..... ☐
10	Find $\frac{2}{5}$ of 21	10..... ☐
11	Find $\frac{3}{8}$ of 37	11..... ☐
12	Find $\frac{3}{16}$ of 18	12..... ☐
13	Find $\frac{3}{5}$ of 320	13..... ☐
14	Find $\frac{3}{7}$ of 168	14..... ☐
15	Write $\frac{72}{84}$ as a fraction in its lowest terms	15..... ☐
16	Write $\frac{18}{108}$ as a fraction in its lowest terms	16..... ☐
17	Write $\frac{60}{88}$ as a fraction in its lowest terms	17..... ☐
18	Write $\frac{375}{775}$ as a fraction in its lowest terms	18..... ☐
19	Write $\frac{64}{256}$ as a fraction in its lowest terms	19..... ☐
20	Write $\frac{96}{392}$ as a fraction in its lowest terms	20..... ☐

Minimum mark	16	13	10	7	
Circle grade	A	B	C	D	E

2 Fractions – 2

1 8 out of 40 men wear glasses.
Write this as a fraction in its lowest terms. 1..... ☐

2 28 out of 32 pupils passed a test.
Write this as a fraction in its lowest terms. 2..... ☐

3 8 pupils out of a class of 24 were boys.
Write this as a fraction in its lowest terms. 3..... ☐

4 15 out of 25 pupils owned a computer.
Write this as a fraction in its lowest terms. 4..... ☐

5 A golf club had 600 members. 420 were men.
100 were woman, 60 were boys, the rest were girls.

a What fraction were men?
Give your answer in its lowest terms. 5a ..... ☐

b What fraction were women?
Give your answer in its lowest terms. 5b..... ☐

c What fraction were boys?
Give your answer in its lowest terms. 5c..... ☐

d What fraction were girls?
Give your answer in its lowest terms. 5d ..... ☐

6 There were 800 people in a cinema. $\frac{1}{4}$ were men, $\frac{2}{5}$ were women, $\frac{1}{8}$ were girls and the rest were boys.

a How many men were there in the cinema? 6a ..... ☐

b How many women were there in the cinema? 6b..... ☐

c How many girls were there in the cinema? 6c..... ☐

d What fraction were boys? 6d ..... ☐

7 A shop had a sale in which all goods were $\frac{1}{4}$ off the normal price. How much money would be saved by buying the following goods?
The normal prices are shown.

a Trousers £18 7a ..... ☐

b Jacket £41 7b..... ☐

c Tie £3.60 7c..... ☐

d Scarf £5.20 7d ..... ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

3 Percentages – 1

Write the following as percentages:

1	3 out of 20	1..... ☐
2	7 out of 40	2..... ☐
3	7 out of 16	3..... ☐
4	4 out of 32	4..... ☐
5	27 out of 40	5..... ☐
6	31 out of 80	6..... ☐
7	16 out of 40	7..... ☐
8	15 out of 75	8..... ☐
9	29 out of 80	9..... ☐
10	18 out of 60	10..... ☐
11	38 out of 400	11..... ☐
12	260 out of 800	12..... ☐

13 Mrs Smith earned £240 per week. Calculate her percentage increase if she received a rise of:

a	£9.60	13a ..... ☐
b	£7.68	13b..... ☐
c	£18.24	13c..... ☐
d	£17.28	13d ..... ☐

14 This table gives the normal price and sale price of some cars. Calculate the percentage reduction in price.

	Normal price	Sale price	
a	£8000	£7200	14a ..... ☐
b	£12 600	£10 710	14b..... ☐
c	£17 500	£11 375	14c..... ☐
d	£25 000	£20 750	14d ..... ☐

Minimum mark	16	13	10	7	
Circle grade	A	B	C	D	E

20

4 Percentages – 2

1 The following list gives the marks obtained by some pupils in a maths test. The marks are out of 160. Express each mark as a percentage:

a	John	120	1a .....
b	Sally	100	1b.....
c	Mandy	96	1c.....
d	Tom	36	1d .....

2 Write the following as percentages:

a	6 men out of 40 are bald	2a .....
b	3 women out of 60 wear a hat	2b.....
c	36 pupils out of 40 passed a test	2c.....
d	28 pupils out of 80 were late	2d .....

3 This table shows the original price and sale price of goods in a shop. Calculate the percentage reduction.

	Item	Original price	Sale price	
a	Gloves	£3.20	£2.56	3a .....
b	Socks	£1.90	£1.14	3b.....
c	Shirt	£8.60	£5.59	3c.....
d	Blouse	£10.80	£8.10	3d .....

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

5 Fractions, decimals and percentages – 1

1 Write the following decimals as percentages:

a 0.37 1a .....

b 0.86 1b.....

c 0.73 1c.....

d 0.66 1d .....

e 0.4 1e.....

f 0.05 1f .....

g 0.038 1g .....

h 0.007 1h.....

2 Convert the following percentages to decimals:

a 27% 2a .....

b 32% 2b.....

c 81% 2c.....

d 60% 2d .....

e 3% 2e.....

f 6.4% 2f .....

g 28.2% 2g .....

h 0.3% 2h.....

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

6 Fractions, decimals and percentages – 2

1 Convert the following percentages to fractions.
Give your answer as a fraction in its lowest terms.

a 40% 1a ..... ☐

b 65% 1b..... ☐

c 32% 1c..... ☐

d 24% 1d ..... ☐

e 6% 1e..... ☐

f 16% 1f ..... ☐

g 6.4% 1g ..... ☐

h 0.7% 1h..... ☐

2 Write the following decimals as fractions.
Give your answer as a fraction in its lowest terms.

a 0.38 2a ..... ☐

b 0.65 2b..... ☐

c 0.48 2c..... ☐

d 0.9 2d ..... ☐

e 0.007 2e..... ☐

f 0.385 2f ..... ☐

g 0.002 2g ..... ☐

h 0.036 2h..... ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

7 Fractions, decimals and percentages – 3

1 Convert the following fractions to decimals:

a $\frac{2}{5}$ 1a .....

b $\frac{7}{10}$ 1b.....

c $\frac{3}{8}$ 1c.....

d $\frac{11}{16}$ 1d .....

e $\frac{17}{20}$ 1e.....

f $\frac{27}{40}$ 1f .....

g $\frac{19}{80}$ 1g .....

h $\frac{3}{100}$ 1h.....

2 Convert the following fractions to percentages:

a $\frac{3}{5}$ 2a .....

b $\frac{9}{10}$ 2b.....

c $\frac{7}{8}$ 2c.....

d $\frac{13}{20}$ 2d .....

e $\frac{19}{40}$ 2e.....

f $\frac{61}{80}$ 2f .....

g $\frac{23}{40}$ 2g .....

h $\frac{51}{80}$ 2h.....

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

8 Fractions, decimals and percentages – 4

Complete this table. Write the missing numbers in the table **and** on the answer line.

	Fraction		Decimal		Percentage
1	$\frac{1}{2}$	=		=	
2		=	0.25	=	
3		=		=	75%
4	$\frac{1}{3}$	=		=	
5		=	0.667	=	
6		=		=	12.5%
7	$\frac{3}{8}$	=		=	
8		=	0.625	=	
9		=		=	87.5%
10	$\frac{1}{10}$	=		=	
11		=	0.01	=	
12	$\frac{1}{5}$	=		=	

1 Decimal ..... ☐
Percentage ..... ☐

2 Fraction ..... ☐
Percentage ..... ☐

3 Fraction ..... ☐
Decimal ..... ☐

4 Decimal ..... ☐
Percentage ..... ☐

5 Fraction ..... ☐
Percentage ..... ☐

6 Fraction ..... ☐
Decimal ..... ☐

7 Decimal ..... ☐
Percentage ..... ☐

8 Fraction ..... ☐
Percentage ..... ☐

9 Fraction ..... ☐
Decimal ..... ☐

10 Decimal ..... ☐
Percentage ..... ☐

11 Fraction ..... ☐
Percentage ..... ☐

12 Decimal ..... ☐
Percentage ..... ☐

Minimum mark	19	16	12	8	
Circle grade	A	B	C	D	E

9 Ratio – 1

This is a recipe for vegetable soup for 4 people:

Water	1200 ml
Carrots	200 g
Onions	160 g
Salt	6 g

1 How much of each ingredient should be used for 2 people?

a Water .....ml ☐
b Carrots .....g ☐
c Onions .....g ☐
d Salt .....g ☐

2 How much of each ingredient should be used for 12 people?

a Water .....ml ☐
b Carrots .....g ☐
c Onions .....g ☐
d Salt .....g ☐

3 How much of each ingredient should be used for 10 people?

a Water .....ml ☐
b Carrots .....g ☐
c Onions .....g ☐
d Salt .....g ☐

4 How much of each ingredient should be used for 6 people?

a Water .....ml ☐
b Carrots .....g ☐
c Onions .....g ☐
d Salt .....g ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

10 Ratio – 2

Simplify these ratios:

1 5:20 1.....:..... ☐

2 6:8 2.....:..... ☐

3 27:78 3.....:..... ☐

4 60:84 4.....:..... ☐

5 200:300:450 5.....:.....:..... ☐

6 6:12:24 6.....:.....:..... ☐

Express the following as ratios in their simplest form:

7 A school has 300 boys and 250 girls 7.....:..... ☐

8 A theatre has 250 men and 300 women 8.....:..... ☐

9 A firm employs 60 men and 72 women 9.....:..... ☐

10 A plane has 320 passengers and 16 crew 10.....:..... ☐

11 A golf course has 500 men and 350 women 11.....:..... ☐

12 A factory employs 1000 men and 1500 women 12.....:..... ☐

Write the following in the ratio 1:n

13 6:18 13.....1:..... ☐

14 28:70 14.....1:..... ☐

15 16:1.6 15.....1:..... ☐

16 0.6:4.2 16.....1:..... ☐

Write the following in the ratio n:1

17 75:15 17.....:1..... ☐

18 32:64 18.....:1..... ☐

19 12:30 19.....:1..... ☐

20 28:40 20.....:1..... ☐

Minimum mark	16	13	10	7	
Circle grade	A	B	C	D	E

20

11 Ratio – 3

1 £6000 is divided between Adam, Ben and Chris in the ratio 1:3:4.

a How much does Adam receive? 1a £ ..... ☐

b How much does Ben receive? 1b £ ..... ☐

c How much does Chris receive? 1c £ ..... ☐

2 In a will £7500 is divided between Anna, Brenda and Carol in the ratio 4:5:6.

a How much does Anna receive? 2a £ ..... ☐

b How much does Brenda receive? 2b £ ..... ☐

c How much does Carol receive? 2c £ ..... ☐

3 Sweets were divided between Danny, Louise and Steve in the ratio 3:4:2. Louise received 20 sweets.

a How many sweets did Danny receive? 3a ..... ☐

b How many sweets did Steve receive? 3b ..... ☐

c What was the total number of sweets? 3c ..... ☐

4 A sum of money was divided between Sara, Jenny and Carla in the ratio 3:5:8. Jenny received £10 more than Sara.

a How much did Sara receive? 4a £ ..... ☐

b How much did Carla receive? 4b £ ..... ☐

c What was the total amount of money? 4c £ ..... ☐

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

12 Scale

Express the following scales in the ratio 1:n

1	The scale of a map is 1 cm represents 1 m	1	1: .....
2	The scale of a map is 1 cm represents 1 km	2	1: .....
3	The scale of a map is 1 cm represents 5 km	3	1: .....
4	The scale of a map is 4 cm represents 5 km	4	1: .....
5	The scale of a map is 2 cm represents 5 km	5	1: .....
6	The scale of a map is 2 cm represents 1 km	6	1: .....

The scale of the map is 1:50 000

7 The distance shown are the distances on the map.
What are the actual distances on the ground?
Give your answers in kilometres:

a	8 cm	7a	.....km
b	22 cm	7b	.....km
c	15 cm	7c	.....km
d	35 cm	7d	.....km
e	3.5 cm	7e	.....km

8 The distances shown are the actual distances on the ground. What are the distances on the map?
Give your answer in centimetres:

a	10 km	8a	.....cm
b	32 km	8b	.....cm
c	20 km	8c	.....cm
d	27.5 km	8d	.....cm
e	0.5 km	8e	.....cm

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

13 Number patterns

For questions 1 to 4:

a Find the rule to produce the nth term.

b Find the 12th term.

c Find the 27th term.

1 7, 10, 13, 16, 19

1a ..... ☐

1b..... ☐

1c..... ☐

2 5, 9, 13, 17, 21

2a ..... ☐

2b..... ☐

2c..... ☐

3 1, 8, 15, 22, 29

3a ..... ☐

3b..... ☐

3c..... ☐

4 10, 6, 2, –2, –6

4a ..... ☐

4b..... ☐

4c..... ☐

5 Here is a pattern made out of matchsticks:

a Draw the next pattern. 5a ..... ☐

b What is the rule to find the number of matchsticks in the nth term? 5b..... ☐

c Use your rule to find the number of matchsticks in the 20th term. 5c..... ☐

d Which term has 121 matchsticks? 5d ..... ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

14 Rules: Equations

Solve the following equations:

1 $x + 3 = 10$

2 $x + 7 = 5$

3 $x - 2 = 7$

4 $x - 8 = 4$

5 $6y = 30$

6 $3a = 18$

7 $-4c = 20$

8 $\frac{d}{4} = 8$

9 $\frac{y}{3} = 6$

10 $-3a = -18$

11 $6a - 3 = 21$

12 $8a + 4 = 3a + 19$

13 $2a + 10 = 5a + 1$

14 $\frac{x}{6} - 1 = 17$

15 $\frac{x}{5} + 2 = 12$

16 $\frac{4x}{3} = 8$

1..... ☐

2..... ☐

3..... ☐

4..... ☐

5..... ☐

6..... ☐

7..... ☐

8..... ☐

9..... ☐

10..... ☐

11..... ☐

12..... ☐

13..... ☐

14..... ☐

15..... ☐

16..... ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

15 Writing equations

1 Mr Wright buys C cakes at 15p each. He pays £2.55.

a Write an equation to show this. 1a ..... ☐

b Solve the equation. 1b..... ☐

2 Mrs Jones bought B books at £6 each. She spent £138.

a Write an equation to show this. 2a ..... ☐

b Solve the equation. 2b..... ☐

3 A number N is chosen. Four times the number minus 6 equals 14.

a Write an equation to show this. 3a ..... ☐

b Solve the equation. 3b..... ☐

4 John has 2y sweets. Paul has 3y + 6 sweets. Altogether they have 41 sweets.

a Write an equation to show this. 4a ..... ☐

b How many sweets does Paul have? 4b..... ☐

Minimum mark	7	5	4	2	
Circle grade	A	B	C	D	E

16 Trial and improvement – 1

Use 'trial and improvement' methods to solve the following. You must show all of your working.

1 Complete the table to find the value of x correct to one decimal place:

$x^2 + 3x = 48$

Guess x	$x^2 + 3x$	Too big	Too small
8	88	8 is too big	
4	28		4 is too small

1..... ☐

2 Complete the table to find the value of x correct to one decimal place:

$x^3 - 3x = 930$

Guess x	$x^3 - 3x$	Too big	Too small
8	488		8 is too small
12	1692	12 is too big	

2..... ☐

Minimum mark	7	5	4	2	
Circle grade	A	B	C	D	E

17 Trial and improvement – 2

In the following questions you must show all of your working.

1 Complete the table to find the value of x correct to two decimal places:

$x^3 - x^2 = 310$

Guess x	$x^3 - x^2$	Too big	Too small
7	294		7 is too small
8	448	8 is too big	

1..... [4]

2 Complete the table to find the values of x correct to two decimal places:

$x^3 + 8x^2 = 251$

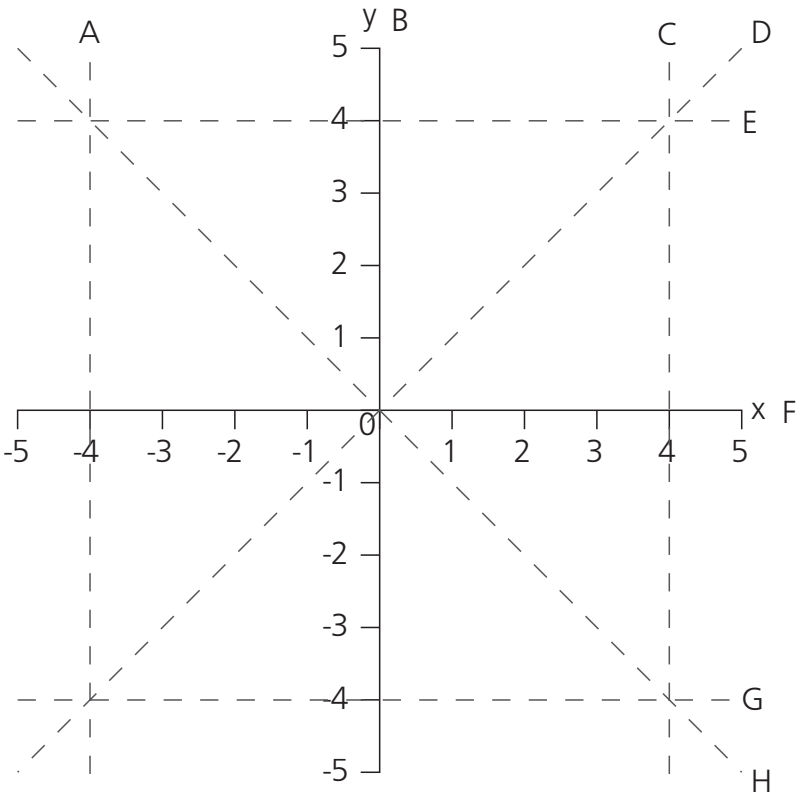
Guess x	$x^3 + 8x^2$	Too big	Too small
5	325	5 is too big	
4	192		4 is too small

2..... [4]

Minimum mark	7	5	4	2	
Circle grade	A	B	C	D	E

18 Drawing lines and graphs

Which letters represent the following lines?



1 x = 0 ..... ☐

2 y = 0 ..... ☐

3 y = 4 ..... ☐

4 x = 4 ..... ☐

5 y = –4 ..... ☐

6 x = –4 ..... ☐

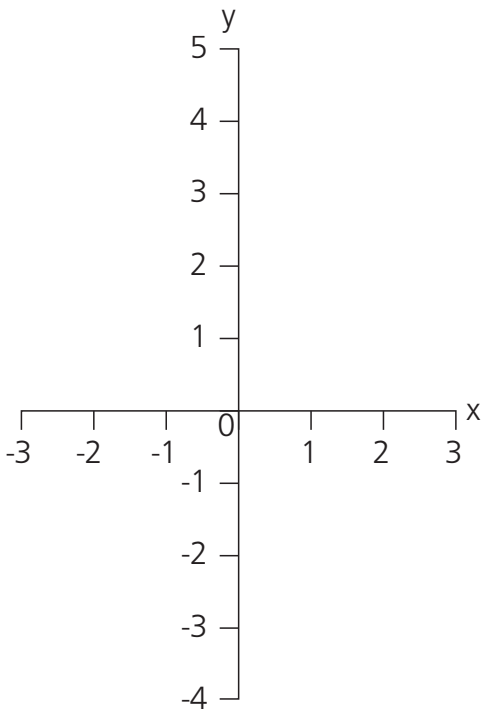
7 y = x ..... ☐

8 y = –x ..... ☐

9 Complete the table of values on the right and draw the graph of $y = x^2 - 4$

x	y
–3	
–2	
–1	
0	
1	
2	
3	

☐



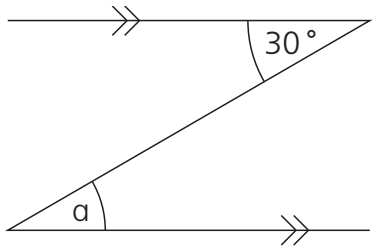
Graph ☐

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

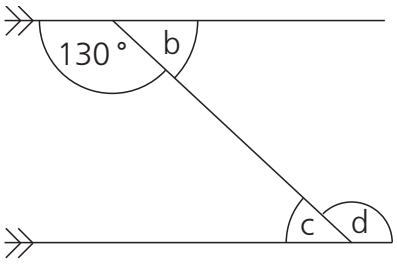
19 Intersecting and parallel lines

Find the missing angles in these diagrams:

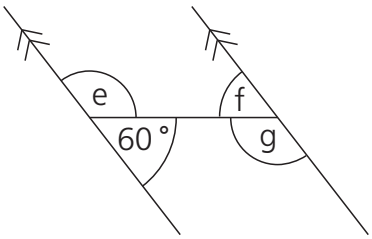
1



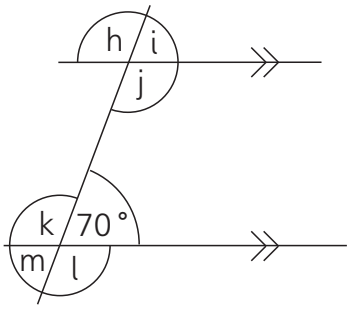
2



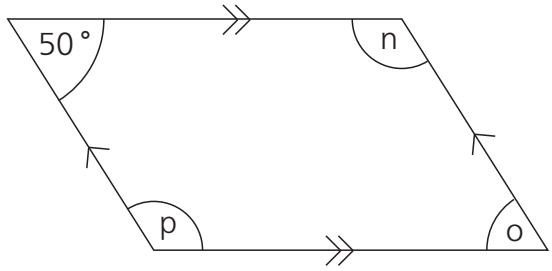
3



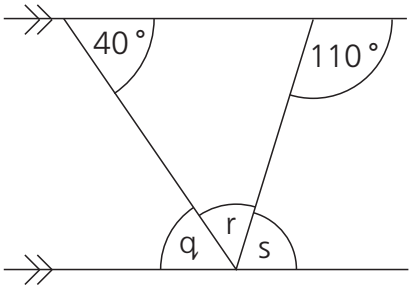
4



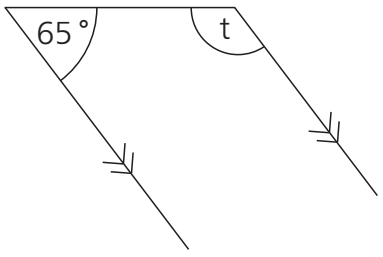
5



6



7



1a ..... ☐

2b..... ☐

2c..... ☐

2d ..... ☐

3e..... ☐

3f ..... ☐

3g ..... ☐

4h..... ☐

4i..... ☐

4j..... ☐

4k..... ☐

4l..... ☐

4m..... ☐

5n..... ☐

5o..... ☐

5p..... ☐

6q ..... ☐

6r ..... ☐

6s ..... ☐

7t ..... ☐

Minimum mark	16	13	10	7	
Circle grade	A	B	C	D	E

20 Regular polygons

Calculate: a The size of each exterior angle.
b The size of each interior angle.
c The sum of the interior angles.

1 A regular pentagon (5 sides)

1a ..... ☐

1b..... ☐

1c..... ☐

2 A regular octagon (8 sides)

2a ..... ☐

2b..... ☐

2c..... ☐

3 A regular 20 sides polygon

3a ..... ☐

3b..... ☐

3c..... ☐

4 Each exterior angle of a regular n-sided polygon is 10°. How many sides does the polygon have?

4..... ☐

5 Each exterior angle of a regular n-sided polygon is 40°. How many sides does the polygon have?

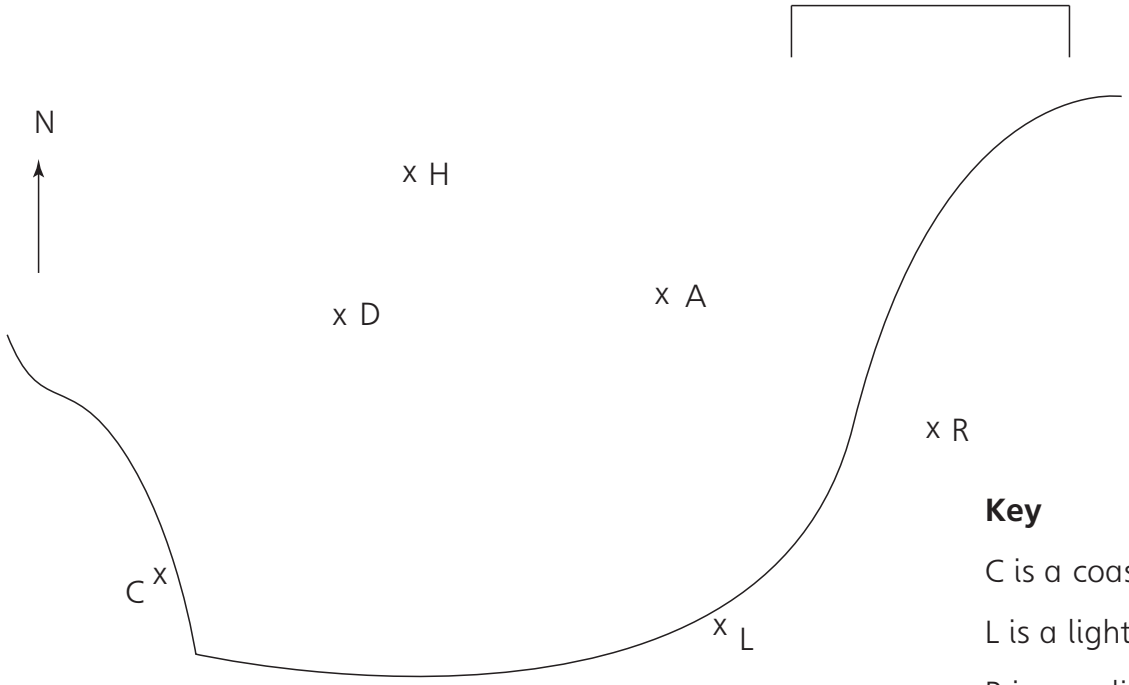
5..... ☐

6 Each interior angle of a regular n-sided polygon is 150°. How many sides does the polygon have?

6..... ☐

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

21 Bearings



Key

C is a coastguard station

L is a lighthouse

R is a radio transmitter

The following are ships:

A = *Appleyard*

D = *Dragonfly*

H = *Hispanic*

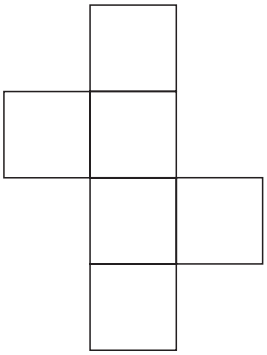
Find the bearing of:

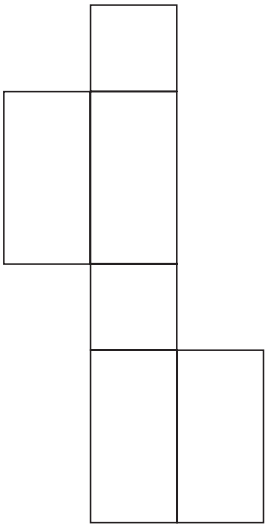
1	The *Hispanic* from the *Dragonfly*	1.....
2	The *Dragonfly* from the *Hispanic*	2.....
3	The *Appleyard* from the lighthouse	3.....
4	The *Dragonfly* from the coastguard station	4.....
5	The lighthouse from the coastguard station	5.....
6	The coastguard station from the radio transmitter	6.....
7	The *Hispanic* from the radio transmitter	7.....
8	The *Appleyard* from the *Hispanic*	8.....
9	The coastguard station from the *Hispanic*	9.....
10	The *Dragonfly* from the lighthouse	10.....
11	The radio transmitter from the *Dragonfly*	11.....
12	The lighthouse from the radio transmitter	12.....

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

22 2-D representation of 3-D shapes

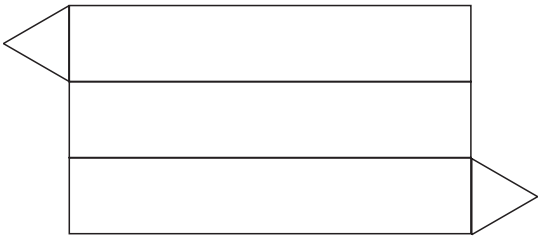
These are the nets of shapes. Name the shapes.

1 

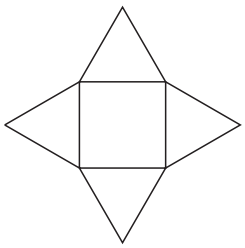
2 

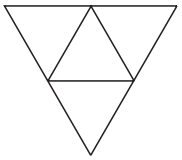
1 ..... ☐

2 ..... ☐

3 

3 ..... ☐

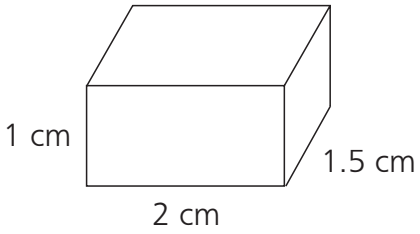
4 

5 

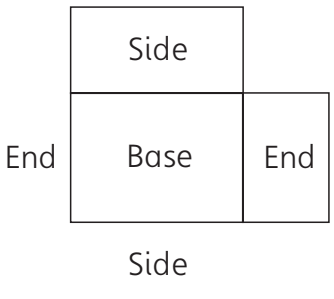
4 ..... ☐

5 ..... ☐

6 Draw an accurate net of this cuboid.
Part of the net has been drawn for you



6



☐

Minimum mark

5	4	3	2	
A	B	C	D	E

Circle grade

6

23 Properties of quadrilaterals and triangles

Name the quadrilateral described by the following statements:

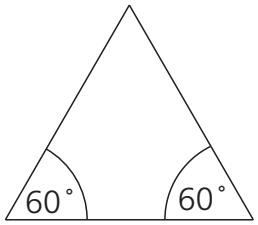
1 Four equal sides, four equal angles 1..... ☐

2 Four equal angles 2..... ☐

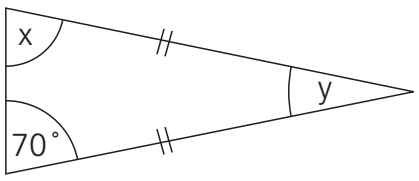
3 Four equal sides 3..... ☐

4 Two pairs of equal length sides adjacent to each other 4..... ☐

5 What is the special name for this triangle? 5..... ☐



6



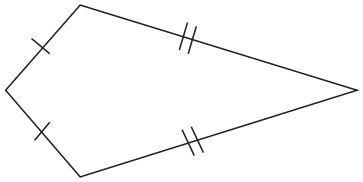
a What is the size of angle x? 6a ..... ☐

b What is the size of angle y? 6b..... ☐

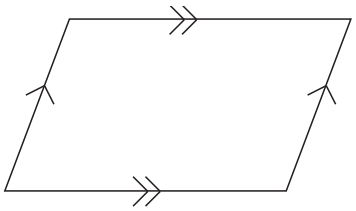
c What is the special name for this triangle? 6c..... ☐

What are the special names of these quadrilaterals?

7



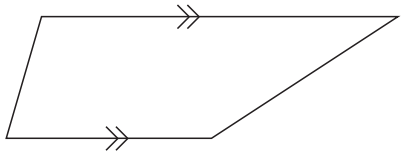
8



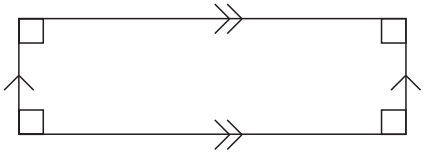
7..... ☐

8..... ☐

9



10

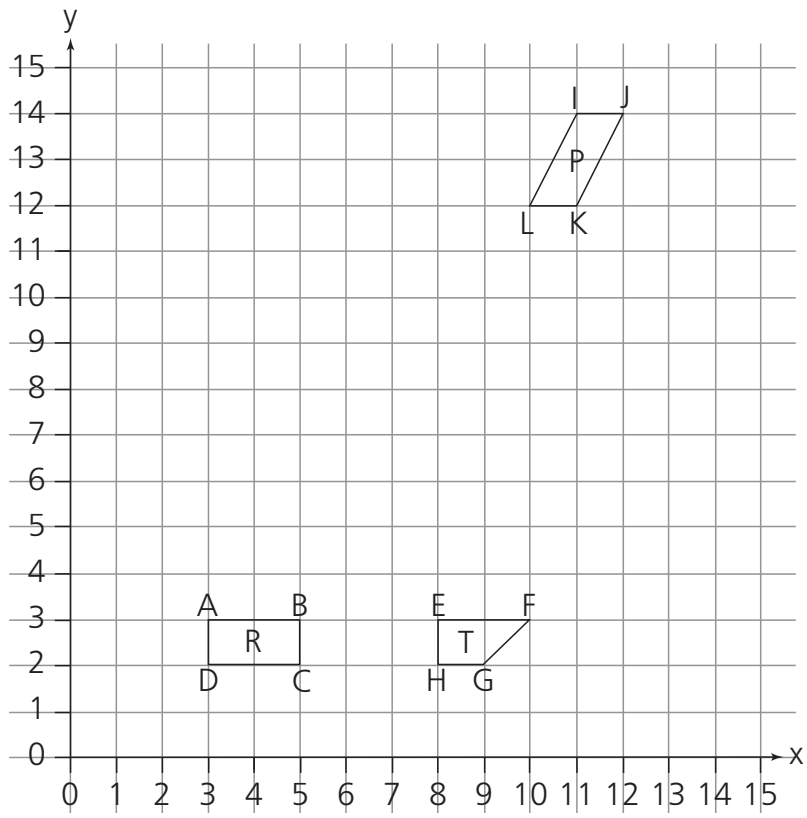


9..... ☐

10..... ☐

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

24 Enlargement



1 Enlarge R by a scale of 3. The centre of the enlargement is the point (1, 1).
Label the new rectangle A'B'C'D'.

New co-ordinates

1A' ..... ☐

1B' ..... ☐

1C' ..... ☐

1D' ..... ☐

2 Enlarge T by a scale factor of 2. The centre of enlargement is the point (15, 0).
Label the new rectangle E'F'G'H'.

2E' ..... ☐

2F' ..... ☐

2G' ..... ☐

2H' ..... ☐

3 Enlarge P by a scale factor of 2. The centre of enlargement is the point (14, 15).
Label the new parallelogram I'J'K'L'.

3I' ..... ☐

3J' ..... ☐

3K' ..... ☐

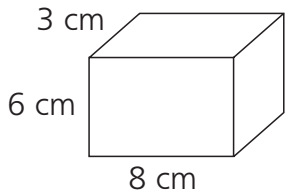
3L' ..... ☐

Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

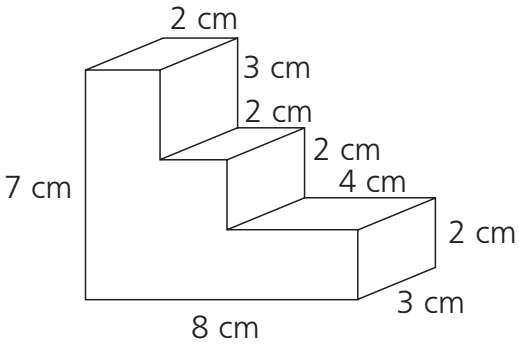
25 Areas and volumes

1 a Find the volume. 1a ..... ☐

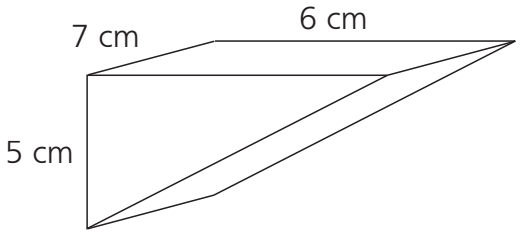
b Find the total surface area. 1b..... ☐



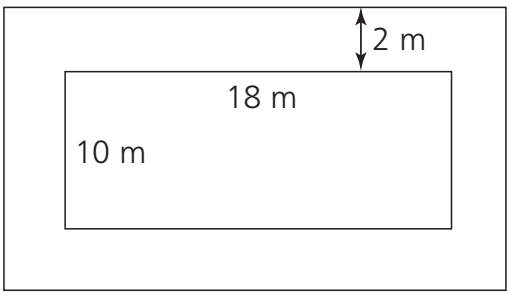
2 Find the volume of this prism: 2..... ☐



3 FInd the volume of this prism: 3..... ☐



4 This is a diagram of a rectangular pond with a path all the way around. The path is 2 m wide.



a What is the area of the path? 4a ..... ☐

b The path is made of concrete 10 cm deep.
What is the total volume of the concrete? 4b..... ☐

Minimum mark	5	4	3	2	
Circle grade	A	B	C	D	E

6

26 Circumference and area of a circle

Find: a the circumference.
b the area of these circles.

Use $\pi = 3.14$

1 Circle radius 6 cm

1a ..... ☐

1b..... ☐

2 Circle radius 4.2 cm

2a ..... ☐

2b..... ☐

3 Circle diameter 14 cm

3a ..... ☐

3b..... ☐

4 Circle diameter 8.8 cm

4a ..... ☐

4b..... ☐

5 Find the diameter of a circle with a circumference of 56.52 cm.

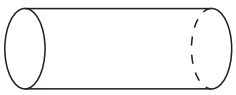
5..... ☐

6 Find the radius of a circle with a circumference of 125.6 cm

6..... ☐

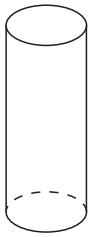
7 Calculate the volume of a cylinder radius 5 cm, length 4 cm

7..... ☐



8 Calculate the volume of a cylinder radius 8 mm, height 2.4 cm

8..... ☐



Minimum mark	10	8	6	4	
Circle grade	A	B	C	D	E

27 Frequency tables and frequency graphs

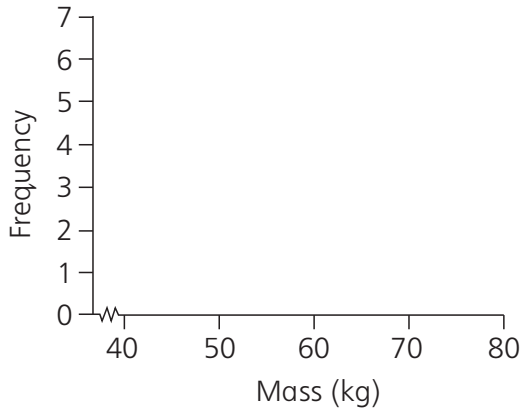
1 This data shows the mass (in kilograms) of 15 people:

47 53 60 56 62
65 56 46 53 73
75 58 54 49 78

a Complete the frequency table on the right:

Mass in kilograms	Tally	Frequency
40 – under 50		
50 – under 60		
60 – under 70		
70 – under 80		

b Show this information in a frequency diagram:



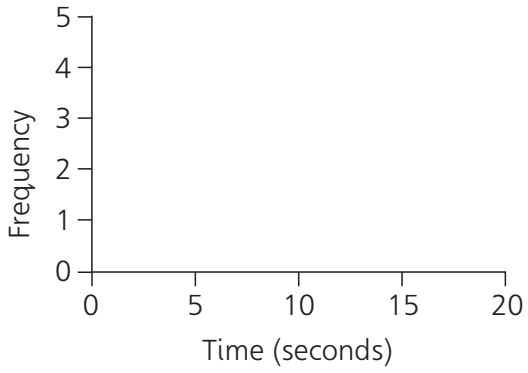
2 This data shows the time (in seconds) that some girls took to thread a needle:

16 3 10 8 12 10
17 19 4 18 4 16

a Complete the frequency table on the right:

Time in seconds	Tally	Frequency
Under 5		
5 – under 10		
10 – under 15		
15 – under 20		

b Show this information in a frequency diagram:



Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E

28 Scatter diagrams

Describe the type of corellation shown by these scatter diagrams. Choose from: positive corellation, negative corellation, no corellation.

The corellation shown is:

1.....

2.....

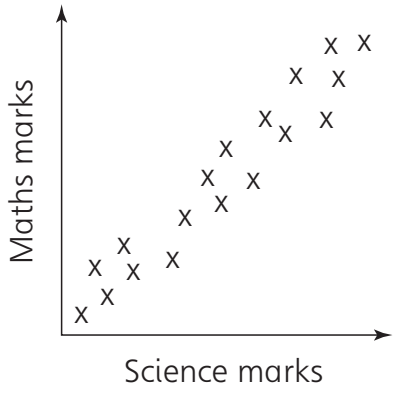
3.....

4.....

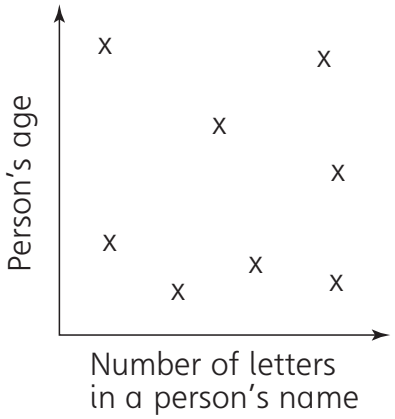
5.....

6.....

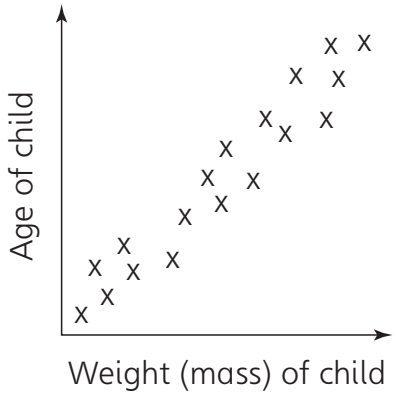
1



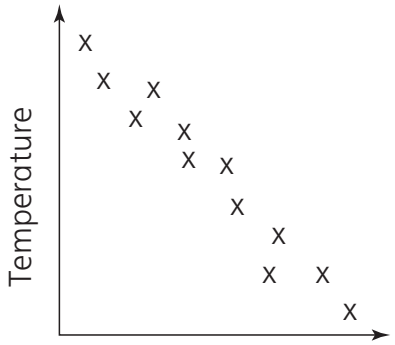
2



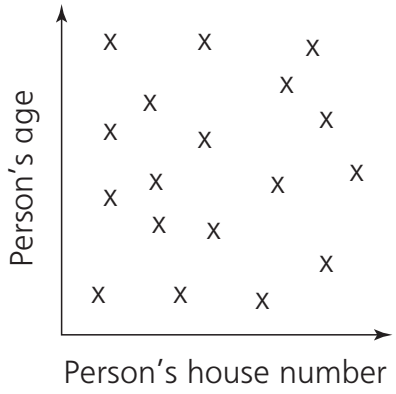
3



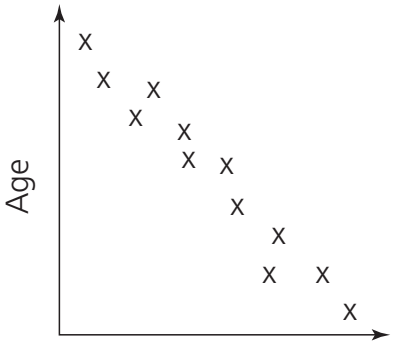
4



5



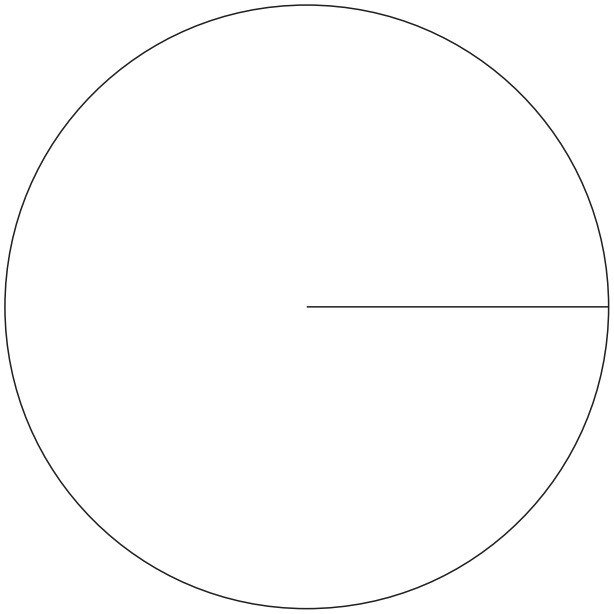
6



Minimum mark	5	4	3	2	
Circle grade	A	B	C	D	E

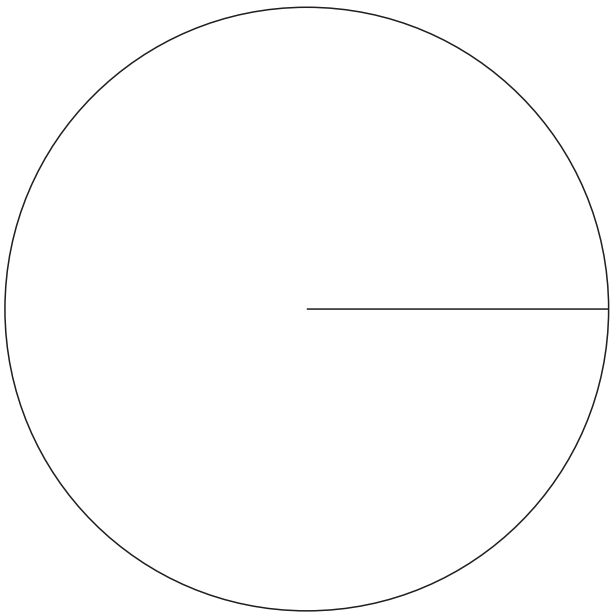
29 Drawing pie charts

1 60 people were asked to name their favourite ice cream flavour.
6 chose vanilla, 25 chose mint, 18 chose chocolate
and 11 chose raspberry.
Show this information on the pie chart.
Label the pie chart clearly.



	Angle size	
Vanilla	.....	☐
Mint	.....	☐
Chocolate	.....	☐
Raspberry	.....	☐

2 45 people were asked how many TV sets they owned.
10 owned 1 TV, 15 owned 2 TV's,
12 owned 3 TV's and 8 owned 4 TV's.
Show this information on the pie chart.
Label the pie chart clearly.



	Angle size	
1 TV	.....	☐
2 TV's	.....	☐
3 TV's	.....	☐
4 TV's	.....	☐

Minimum mark	7	5	4	2	
Circle grade	A	B	C	D	E

30 Probability

1 The probability that a new battery does not work is 0.04.

a What is the probability that a new battery does work? 1a .....

b A firm produced 5000 batteries. How many would you expect to be faulty? 1b.....

2 Three horses compete in a race. Show all of the possible outcomes. Two possible results are: 2.....

Amber Boss Caddy (ie ABC) .....

Amber Caddy Boss (ie ACB) .....

.....

3 A bag contains 4 white, 3 red and 2 black discs. What is the probability of choosing:

a A white disc? 3a .....

b A red disc? 3b.....

c A black disc? 3c.....

d A yellow disc? 3d .....

e A red or white disc? 3e.....

f A red or black disc? 3f .....

g A white or black disc? 3g .....

h A red or black or white disc? 3h.....

4 The probability of a cooker having a fault in the first year is 0.12.

a What is the probability of a cooker not having a fault in the first year? 4a .....

b If 2000 cookers are produced, how many would you expect to develop a fault in the first year? 4b.....

Minimum mark	13	11	8	5	
Circle grade	A	B	C	D	E