

KS3 Mathematics Homework



Pack B: Level 4

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2		Multiplication facts	
3		Solving problems without a calculator	
4		Addition and subtraction of decimals	
5		Calculation checks	
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7		Fractions and percentages – 2	
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10		Number patterns – 3	
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30		Probability	

1 Place value

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Write the following numbers in figures:

- 1 Sixty-three thousand 1.....
- 2 Four hundred thousand 2.....
- 3 Five million 3.....
- 4 Half a million 4.....
- 5 Seventy thousand, two hundred and six 5.....
- 6 Two hundred thousand and five 6.....
- 7 Sixteen thousand, four hundred 7.....
- 8 Eight thousand, two hundred and twenty-four 8.....
- 9 What is the next whole number after twenty thousand? Write your answer in figures. 9.....
- 10 What is the next whole number after one hundred thousand? Write your answer in figures. 10.....
- 11 What is the last whole number before five thousand? Write your answer in figures. 11.....
- 12 What is the last whole number before one million? Write your answer in figures. 12.....

Look at each list. Write down the largest number and the smallest number in each list:

- 13 12 312 6873 9113 6997 Largest 13a
Smallest 13b.....
- 14 10 020 9898 10 009 9901 Largest 14a
Smallest 14b.....
- 15 36 842 87 101 78 886 47 812 Largest 15a
Smallest 15b.....
- 16 61 538 57 284 9999 99 999 Largest 16a
Smallest 16b.....

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

 20



2 Multiplication facts

What are the missing numbers?

1 $6 \times 7 = \square$

2 $4 \times \square = 36$

1.....

3 $\square \times 7 = 56$

4 $72 \div 8 = \square$

2.....

3.....

5 $\square \div 4 = 7$

6 $24 \div \square = 3$

4.....

5.....

7 $\square \times 9 = 81$

8 $\square \div 7 = 5$

6.....

7.....

9 $\square \times 10 = 28$

10 $36\ 000 \div 100 = \square$

8.....

9.....

11 $420 \div \square = 42$

12 $63 \times \square = 6300$

10.....

11.....

13 What is the cost of 6 apples at 8p each?

12.....

13.....p

14 What is the cost of 7 oranges at 9p each?

14.....p

15 What is the cost of 10 pencils at 18p each?

15 £

16 What is the cost of 100 pens at 32p each?

16 £

17 How many pence are in £18?

17.....p

18 Mr Moore bought 6 chairs for £54.
How much was each chair?

18 £

19 Paul bought 10 calculators for £80.
How much was each calculator?

19 £

20 Miss Riley bought 100 eggs for £6.
How much was each egg?

20.....p

Minimum mark

16	13	10	7	
A	B	C	D	E

Circle grade

20



3 Solving problems without a calculator



- 1 John had 378 books. Paul had 36 more.
How many books did Paul have? 1.....
- 2 Jayne had 265 sweets. She ate 78.
How many sweets did she have left? 2.....
- 3 6 people can sit at each table. How many
tables are needed for 48 people? 3.....
- 4 There are 8 cars in a car park. There are 5 people
in each car. How many people are there altogether? 4.....
- 5 30 tins were placed in 5 boxes.
How many tins were in each box? 5.....
- 6 A bus has 72 seats. 38 seats are full.
How many seats are empty? 6.....
- 7 9 boys each had 7 books. How many books
did they have altogether? 7.....
- 8 A train had 769 passengers. 183 got off as a station.
How many passengers were left on the train? 8.....
- 9 One car can carry 5 people. How many cars
are needed for 45 people? 9.....
- 10 A hall had 387 adults and 738 children.
How many people were in the hall? 10.....
- 11 6 cats each had 4 kittens. How many
kittens were there? 11.....
- 12 36 batteries were placed in packs. Each pack
held 4 batteries. How many packs were there? 12.....
- 13 A school has 1231 pupils. 658 are boys.
How many are girls? 13.....
- 14 A factory employed 329 men and 287 women.
How many people were employed? 14.....
- 15 A school hall had 64 chairs in 8 rows.
How many chairs were in each row? 15.....
- 16 8 girls each had 6 books. How many books
did they have altogether? 16.....



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

_____ 16



4 Addition and subtraction of decimals

1
$$\begin{array}{r} 23.61 \\ + 42.17 \\ \hline \end{array}$$

2
$$\begin{array}{r} 56.37 \\ + 13.28 \\ \hline \end{array}$$

3
$$\begin{array}{r} 36.48 \\ + 29.34 \\ \hline \end{array}$$

4
$$\begin{array}{r} 736.8 \\ + 27.9 \\ \hline \end{array}$$

5
$$\begin{array}{r} 48.3 \\ + 27.28 \\ \hline \end{array}$$

6
$$\begin{array}{r} 13.26 \\ + 17.842 \\ \hline \end{array}$$

7
$$\begin{array}{r} 68.48 \\ - 27.35 \\ \hline \end{array}$$

8
$$\begin{array}{r} 49.27 \\ - 36.32 \\ \hline \end{array}$$

9
$$\begin{array}{r} 43.74 \\ - 17.38 \\ \hline \end{array}$$

10
$$\begin{array}{r} 15.83 \\ - 6.29 \\ \hline \end{array}$$

11
$$\begin{array}{r} 3.072 \\ - 1.281 \\ \hline \end{array}$$

12
$$\begin{array}{r} 5.3 \\ - 1.962 \\ \hline \end{array}$$

13 $28 + 3.6 + 0.87 + 12.3$

14 $46.5 + 7 + 0.03 + 1.68$

15 $8.72 - 1.918$

16 $63.2 - 1.74$

1.....

2.....

3.....

4.....

5.....

6.....

7.....

8.....

9.....

10.....

11.....

12.....

13.....

14.....

15.....

16.....

Minimum mark

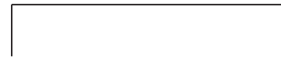
13	11	8	5	
A	B	C	D	E

Circle grade

16



5 Calculation checks



Write the following correct to the nearest whole number:

1 3.4

2 7.8

1.....

3 13.6

4 18.3

2.....

5 3.287

6 25.612

3.....

7 63.18

8 13.53

4.....

9 18.07

10 59.712

5.....

11 80.32

12 99.8

6.....

7.....

8.....

9.....

10.....

11.....

12.....

For each of the following questions choose the right estimate:

13 $3803 - 2698$ Choose from: a 11 000, b 110, c 1100

13.....

14 $892 + 399$ Choose from: a 1200, b 1300, c 1400

14.....

15 $1403 - 199$ Choose from: a 500, b 1200, c 1300

15.....

16 $5706 - 998$ Choose from: a 4700, b 4600, c 4800

16.....

17 $297 + 598$ Choose from: a 700, b 800, c 900

17.....

18 $3004 + 2997$ Choose from: a 0, b 6000, c 5900

18.....

Check these answers by estimating.

Three are wrong. Put ✓ or ✗ in the answer space

19 $78.39 \times 61.21 = 479.82519$

19.....

20 $5945 \div 29 = 20.5$

20.....

21 $399 \times 1.98 = 790.02$

21.....

22 $7.015 \times 39.6 = 277.794$

22.....

23 $7995 \div 39 = 205$

23.....

24 $7980 \div 19 = 4200$

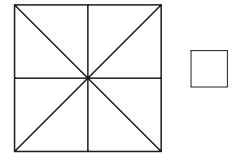
24.....



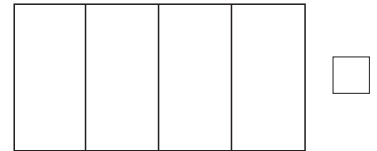
Minimum mark	19	16	12	8	
Circle grade	A	B	C	D	E

6 Fractions and percentages – 1

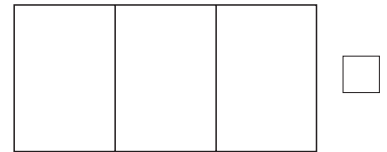
1 Shade 25% of this shape:



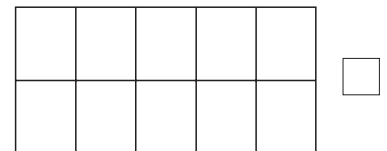
2 Shade 50% of this shape:



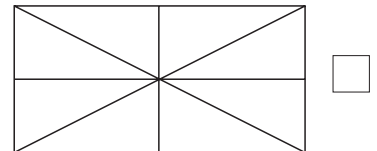
3 Shade $\frac{1}{3}$ of this shape:



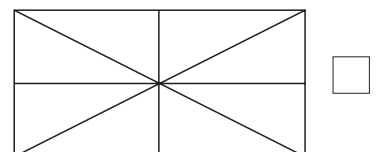
4 Shade $\frac{3}{5}$ of this shape:



5 Shade $\frac{3}{8}$ of this shape:



6 Shade $\frac{3}{4}$ of this shape:



Look at these lines. The posts A and B are marked.

7 Mark a point X which is halfway between A and B:



8 Mark a point Y which is $\frac{1}{3}$ of the way from A to B:



Minimum mark

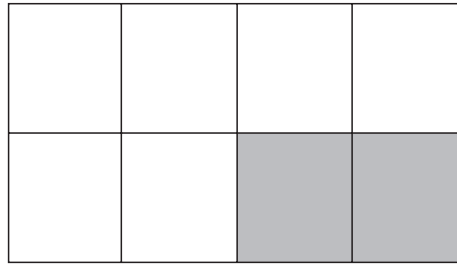
Circle grade

7	5	4	2	
A	B	C	D	E

8

7 Fractions and percentages – 2

1 a What percentage of this shape is shaded?



1a

b What fraction of this shape is shaded?

1b.....

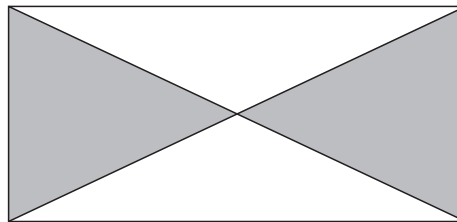
c What percentage of this shape is not shaded?

1c.....

d What fraction of this shape is not shaded?

1d

2 a What percentage of this shape is shaded?

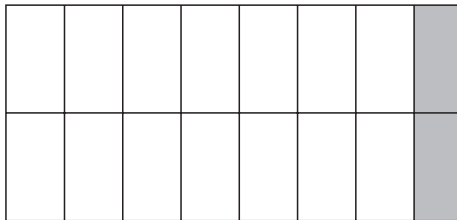


2a

b What fraction of this shape is shaded?

2b.....

3 a What fraction of this shape is shaded?

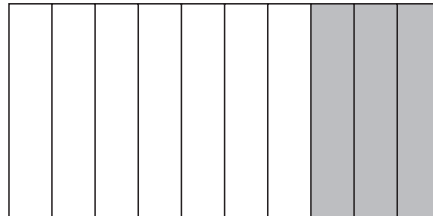


3a

b What fraction of this shape is not shaded?

3b.....

4 a What fraction of this shape is shaded?

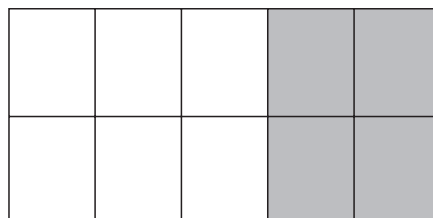


4a

b What fraction of this shape is not shaded?

4b.....

5 a What fraction of this shape is shaded?



5a

b What fraction of this shape is not shaded?

5b.....

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

_____ / 12

8 Number patterns – 1



Write down 2 multiples of:

1 3

2 5

1.....

2.....

3 7

4 10

3.....

4.....

Write down the prime numbers in each list:

5 1, 2, 3, 4, 8, 16

5.....

6 3, 5, 7, 9

6.....

7 12, 13, 14, 15, 16, 17

7.....

8 19, 21, 23, 25, 27

8.....

Write down all of the factors of:

9 3

9.....

10 4

10.....

11 8

11.....

12 10

12.....

13 a Write down the next two numbers in this sequence:

1, 3, 6, 10, 15, 21

13a

b What is the special name of this number sequence?

13b.....

.....

14 a Write down the next two numbers in this sequence:

1, 4, 9, 16, 25, 36

14a

b What is the special name for this number sequence?

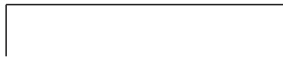
14b.....

.....



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

9 Number patterns – 2



Write down the next two numbers in each sequence:

1 2, 4, 6, 8, 10

1

2 7, 9, 11, 13, 15, 17

2

3 6, 12, 18, 24, 30

3

4 30, 27, 24, 21, 18, 15

4

5 1, 2, 4, 8, 16, 32, 64

5

6 1, 1, 2, 3, 5, 8, 13

6

7 $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}$

7

8 $\frac{1}{2}, \frac{1}{4}, \frac{1}{6}, \frac{1}{8}, \frac{1}{10}$

8

What are the missing numbers in each sequence?

9 5, 8, 11, ..., 17, ..., 23, 26

9

10 20, 18, 16, ..., 12, ..., 8, 6

10

11 1, 10, 100, ..., ..., 100 000, 1 000 000

11

12 40, 36, 32, ..., 24, ..., 16, 12

12

Draw the next pattern in each sequence:

13

13

14

14

15

15

16

16



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

10 Number patterns – 3



Complete the number patterns:

1 $40\ 000 \times 3 = 4000 \times 30 = 400 \times \overset{a}{\square} = \overset{b}{\square} \times \overset{c}{\square} = \overset{d}{\square} \times 30\ 000$

1a

1b.....

1c.....

1d

2 $60\ 000 \times 2 = 6000 \times 20 = 600 \times \overset{a}{\square} = \overset{b}{\square} \times \overset{c}{\square} = \overset{d}{\square} \times 20\ 000$

2a

2b.....

2c.....

2d

3 $20 + 0 = 16 + 4 = 12 + 8 = \overset{a}{\square} + \overset{b}{\square} = 4 + \overset{c}{\square} = \overset{d}{\square} + 20$

3a

3b.....

3c.....

3d

4 $32 \times 2 = 16 \times 4 = 8 \times \overset{a}{\square} = \overset{b}{\square} \times 16 = \overset{c}{\square} \times \overset{d}{\square}$

4a

4b.....

4c.....

4d

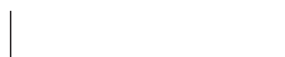
5 $7 + 1 = 6 + 2 = 5 + 3 = \overset{a}{\square} + 4 = \overset{b}{\square} + \overset{c}{\square} = 2 + \overset{d}{\square} = 1 + 7$

5a

5b.....

5c.....

5d



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

 20

11 Using formulae



The price of a holiday is calculated as follows:

Price of holiday = Cost of travel + Cost of the hotel.

Find the price of these holidays:

- | | | | |
|---|--|-----------|--------------------------|
| 1 | Cost of travel is £80, cost of the hotel is £40 | 1 £ | <input type="checkbox"/> |
| 2 | Cost of travel is £100, cost of the hotel is £60 | 2 £ | <input type="checkbox"/> |
| 3 | Cost of travel is £70, cost of the hotel is £35 | 3 £ | <input type="checkbox"/> |
| 4 | Cost of travel is £67, cost of the hotel is £28 | 4 £ | <input type="checkbox"/> |

Find the cost of travel:

- | | | | |
|---|--|-----------|--------------------------|
| 5 | Cost of the holiday is £200, cost of the hotel is £90 | 5 £ | <input type="checkbox"/> |
| 6 | Cost of the holiday is £180, cost of the hotel is £120 | 6 £ | <input type="checkbox"/> |
| 7 | Cost of the holiday is £160, cost of the hotel is £72 | 7 £ | <input type="checkbox"/> |
| 8 | Cost of the holiday is £157, cost of the hotel is £86 | 8 £ | <input type="checkbox"/> |

Find the cost of the hotel:

- | | | | |
|----|--|------------|--------------------------|
| 9 | Price of the holiday is £320, cost of the travel is £130 | 9 £ | <input type="checkbox"/> |
| 10 | Price of the holiday is £180, cost of the travel is £84 | 10 £ | <input type="checkbox"/> |
| 11 | Price of the holiday is £170, cost of the travel is £124 | 11 £ | <input type="checkbox"/> |
| 12 | Price of the holiday is £260, cost of the travel is £152 | 12 £ | <input type="checkbox"/> |

Choose a number. Double the number, then add 3.

What is the result if you start with?

- | | | | |
|----|----|----------|--------------------------|
| 13 | 3 | 13 | <input type="checkbox"/> |
| 14 | 8 | 14 | <input type="checkbox"/> |
| 15 | 10 | 15 | <input type="checkbox"/> |
| 16 | 15 | 16 | <input type="checkbox"/> |

What was the number chosen if the result was?

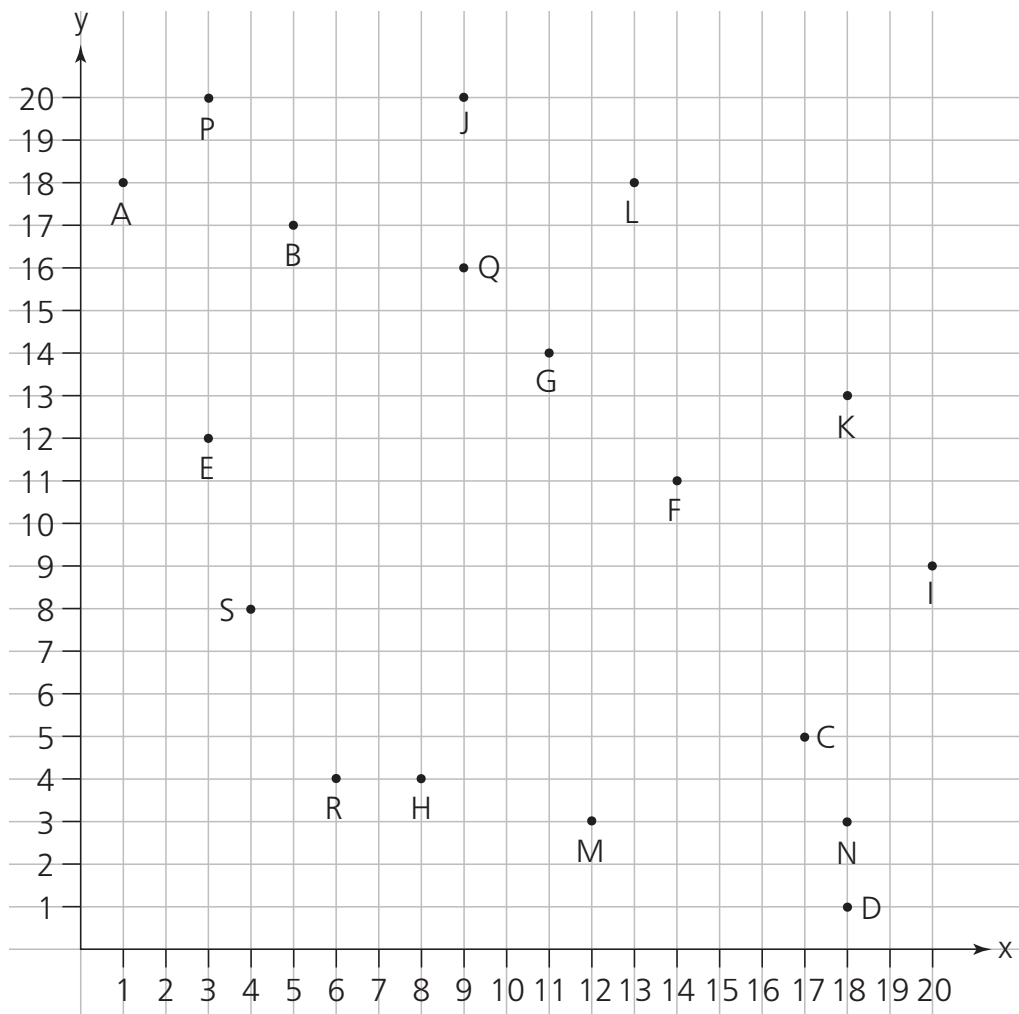
- | | | | |
|----|----|----------|--------------------------|
| 17 | 15 | 17 | <input type="checkbox"/> |
| 18 | 7 | 18 | <input type="checkbox"/> |
| 19 | 13 | 19 | <input type="checkbox"/> |
| 20 | 45 | 20 | <input type="checkbox"/> |



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

 20

12 Co-ordinates



Give the co-ordinates of the following points:

- | | | | | | |
|---|---|---|---|---|---|
| 1 | A | 2 | B | 3 | C |
| 4 | D | 5 | M | 6 | P |

Which letter is at the co-ordinates?

- | | | | | | |
|----|----------|----|----------|----|---------|
| 7 | (3, 12) | 8 | (14, 11) | 9 | (4, 8) |
| 10 | (13, 18) | 11 | (18, 1) | 12 | (20, 9) |

Give the co-ordinates of the mid-point of the line joining:

- | | | | |
|----|---------|----|---------|
| 13 | M and N | 14 | P and Q |
| 15 | R and S | 16 | H and S |

- 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

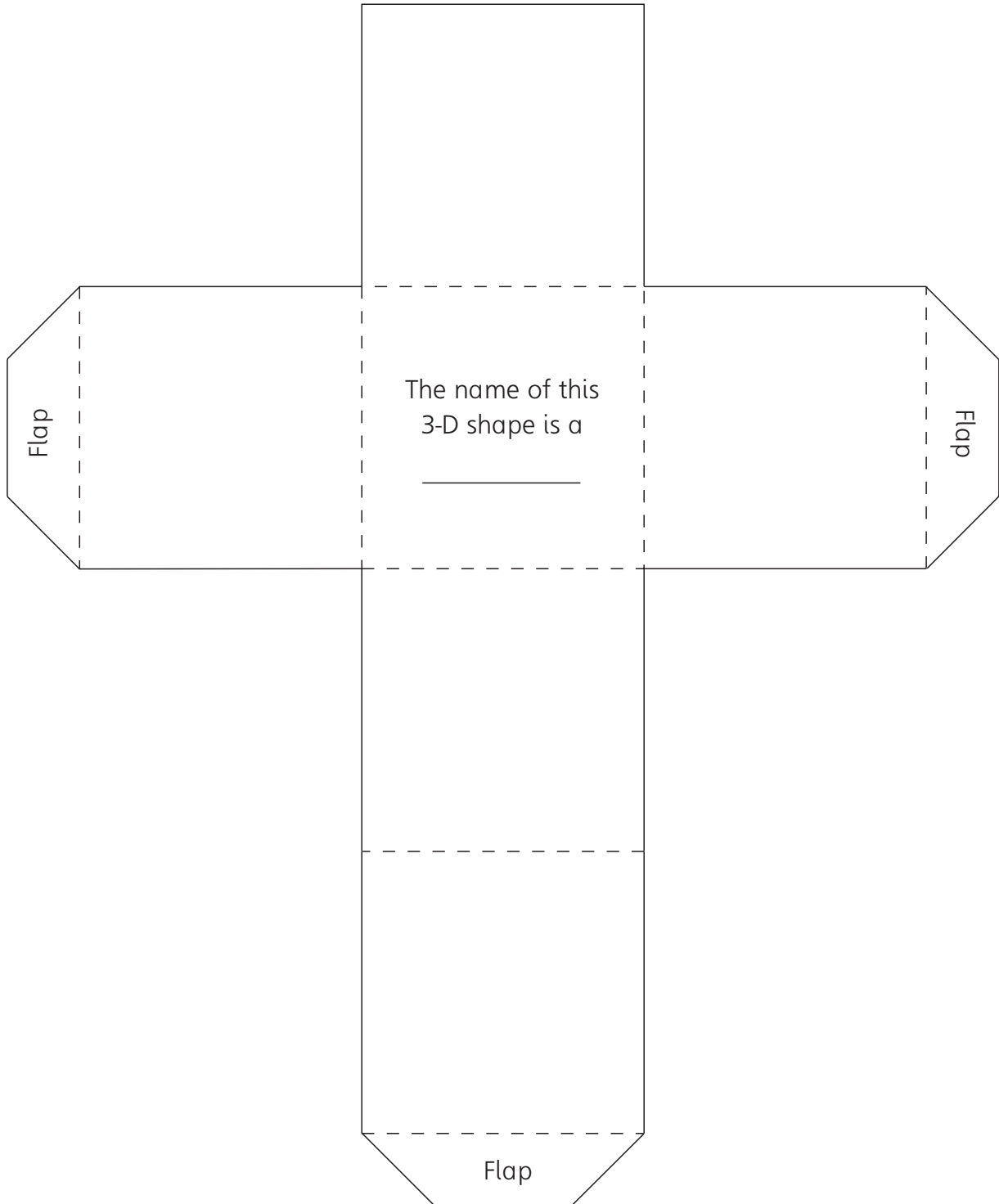
13 3-D models – 1

Cut along the solid lines.

Fold along the dotted lines.

Stick together.

What is the name of the shape?



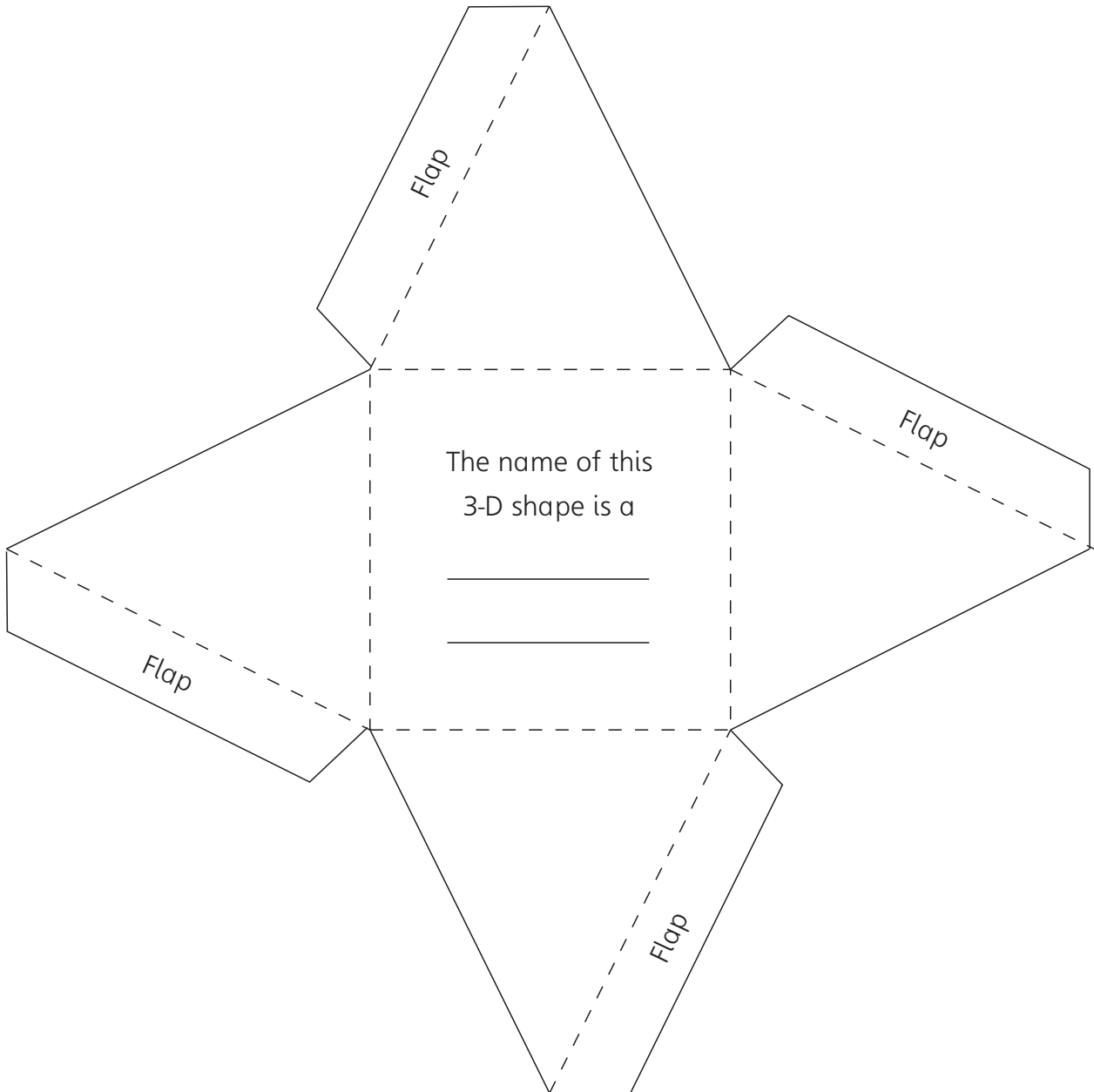
14 3-D models – 2

Cut along the solid lines.

Fold along the dotted lines.

Stick together.

What is the name of the shape?



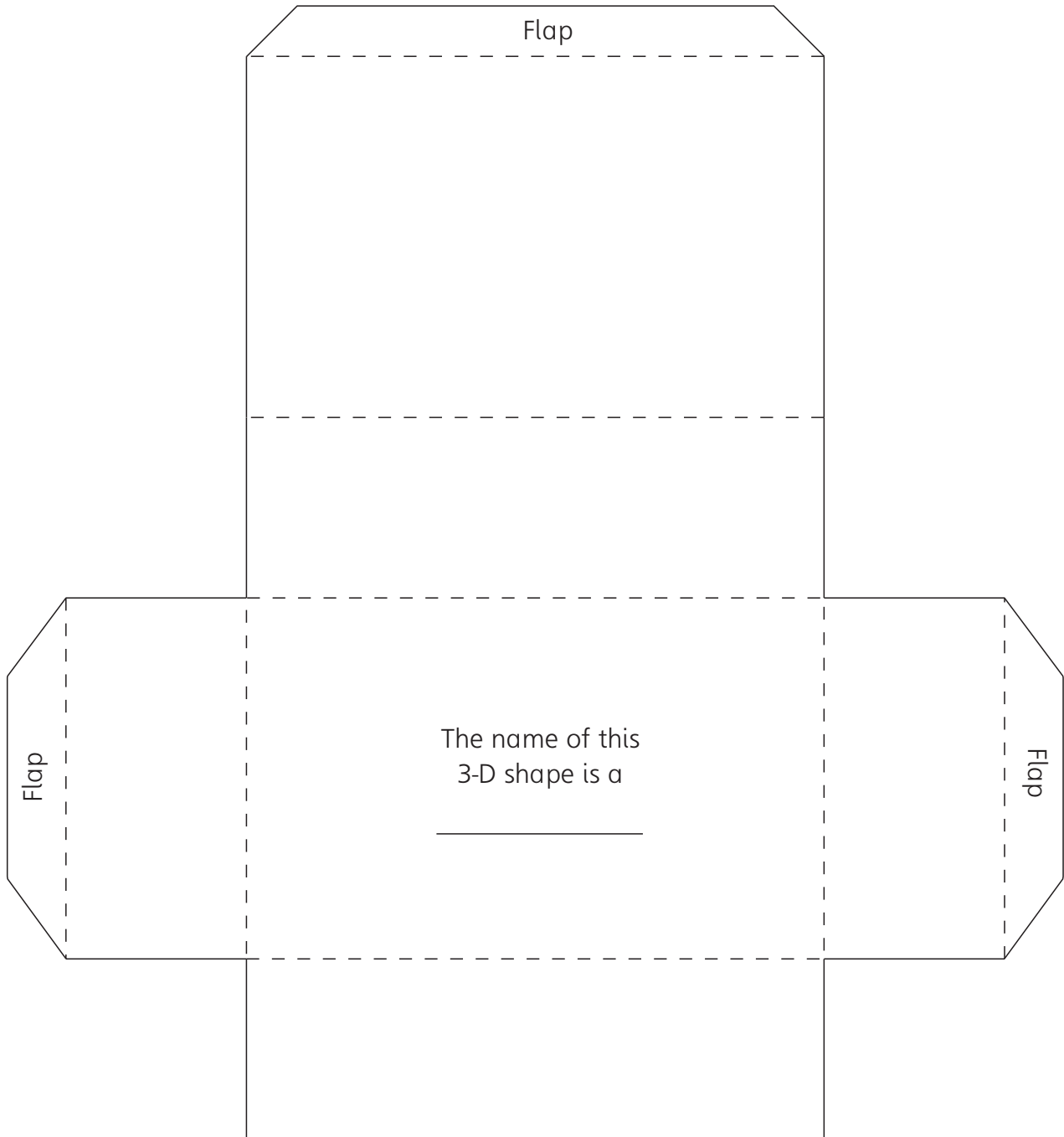
15 3-D models – 3

Cut along the solid lines.

Fold along the dotted lines.

Stick together.

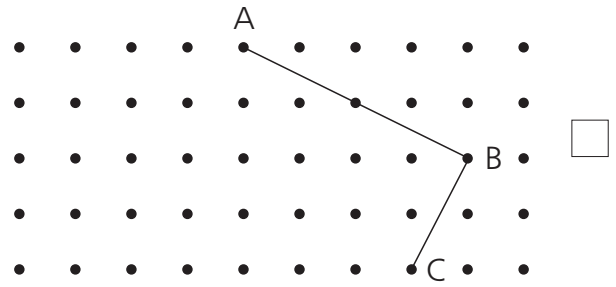
What is the name of the shape?



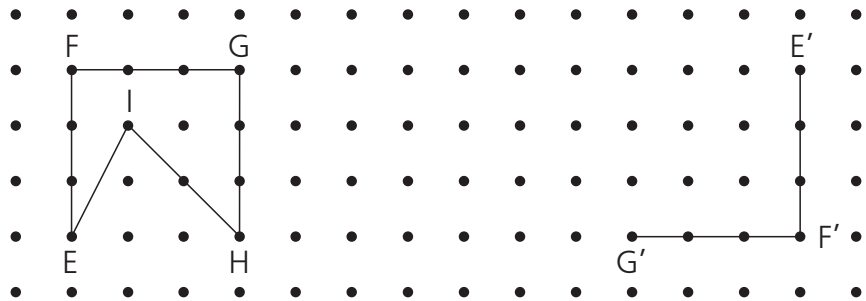
16 Common 2-D shapes



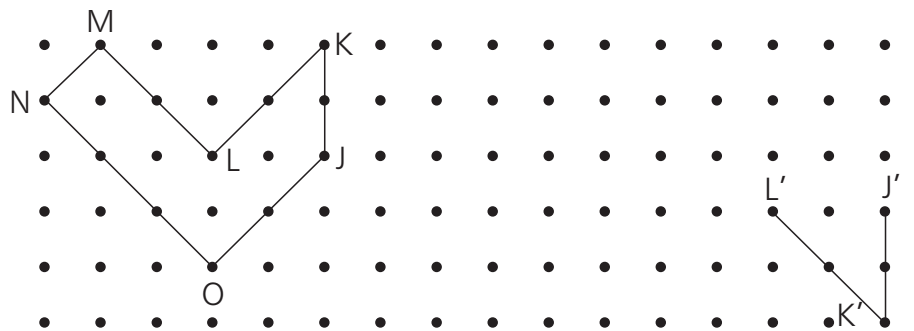
1 ABCD is a rectangle. Complete the diagram.



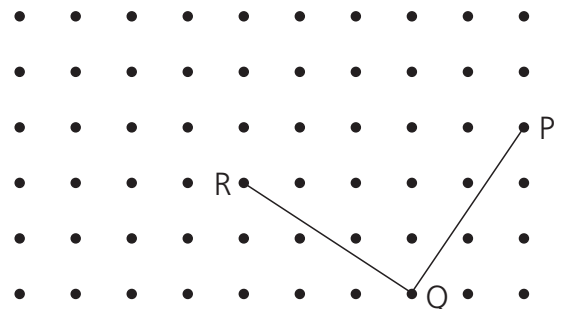
2 The shape EFGHI is turned and moved to form the shape E'F'G'H'I'. E'F'G' are shown. Complete the diagram.



3 The shape JKLMNO is turned over and moved to form the shape J'K'L'M'N'O'. J'K'L' are shown. Complete the diagram.



4 The shape PQRS is a square. Complete the diagram.



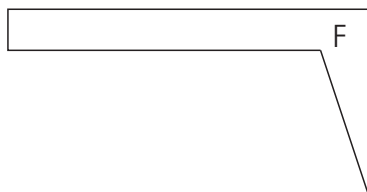
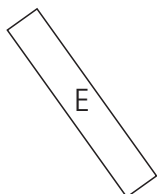
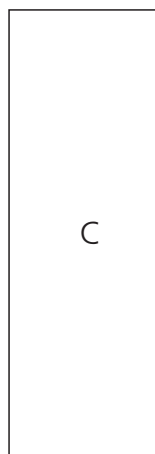
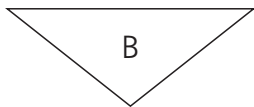
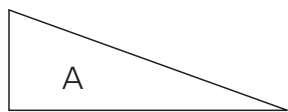
Minimum mark	4	3	2	1	
Circle grade	A	B	C	D	E

4

17 Congruent shapes



Look at these shapes, then complete the sentences.



1 A is congruent to

2 B is congruent to

3 C is congruent to

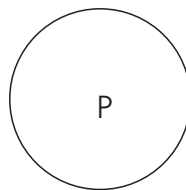
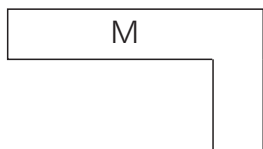
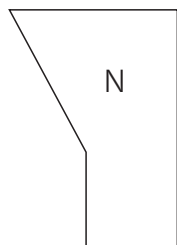
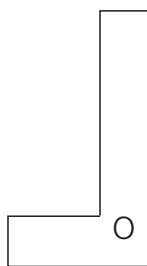
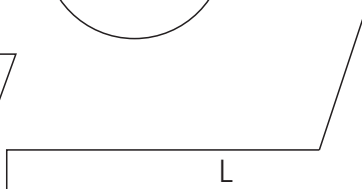
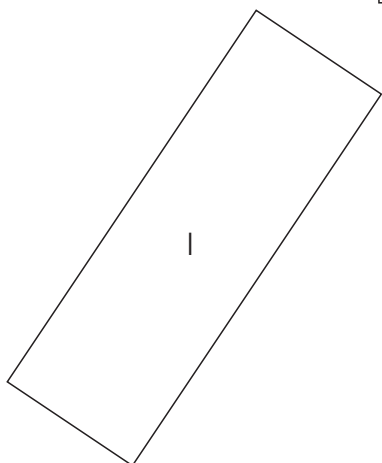
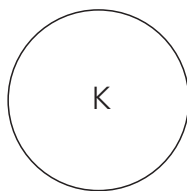
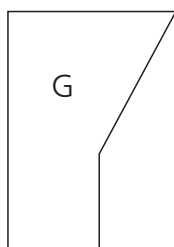
4 E is congruent to

5 F is congruent to

6 G is congruent to

7 K is congruent to

8 M is congruent to



Minimum mark

7	5	4	2	
A	B	C	D	E

Circle grade

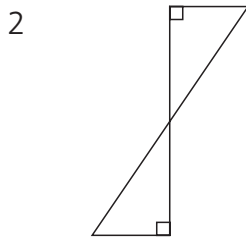
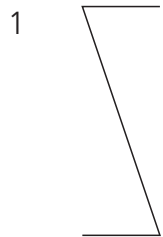
8

18 Rotational symmetry

Look at these shapes.

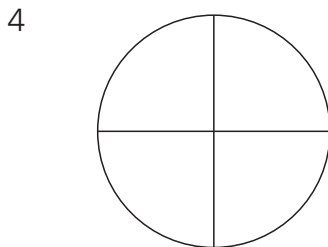
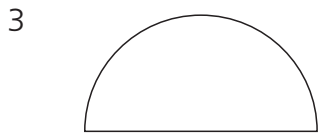
If a shape does not have rotational symmetry, write 'none'.

If a shape does have rotational symmetry, write the order, eg order 4.



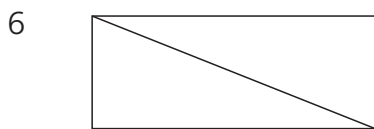
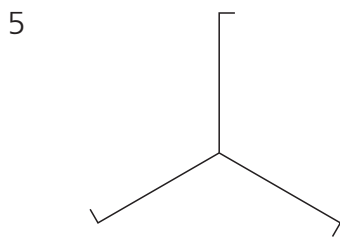
1.....

2.....



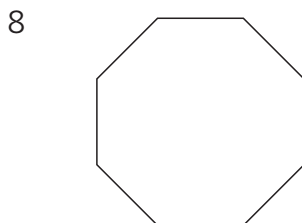
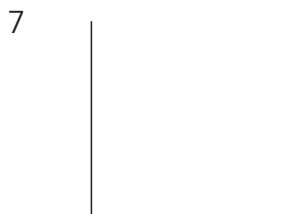
3.....

4.....



5.....

6.....



7.....

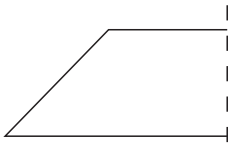
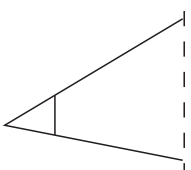
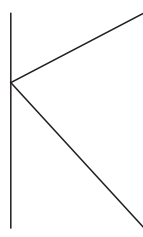
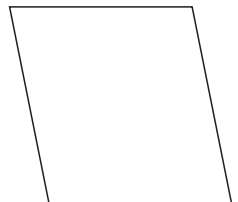
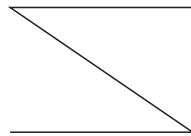
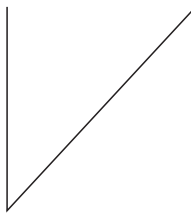
8.....

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

19 Reflection - 1

--

The dotted lines are mirror lines.
Reflect the following shapes in the mirror line.
You may use tracing paper.

1		<input type="checkbox"/>
2		<input type="checkbox"/>
3		<input type="checkbox"/>
4		<input type="checkbox"/>
5		<input type="checkbox"/>
6		<input type="checkbox"/>

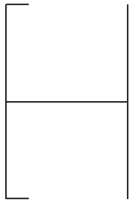
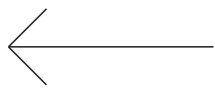

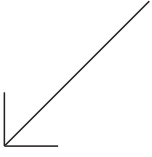
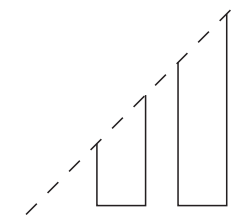
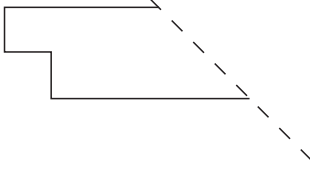
--

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

_____ / 6

20 Reflection - 2

The dotted lines are mirror lines.
Reflect the following shapes in the mirror line.
You may use tracing paper.

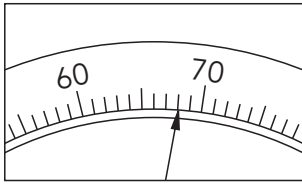
1		<input type="checkbox"/>
2		<input type="checkbox"/>
3		<input type="checkbox"/>
4		<input type="checkbox"/>
5		<input type="checkbox"/>
6		<input type="checkbox"/>

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

6

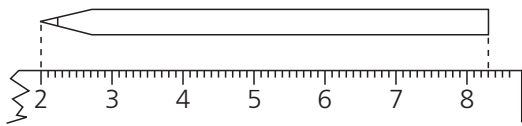
21 Measurement – 1

- 1 Mrs Green is weighing herself. The scale shows her weight in kilograms. How much does she weigh?



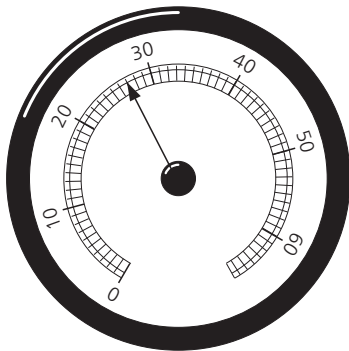
1.....kg

- 2 Mr Green is measuring this pencil. Unfortunately, his ruler is broken at the end. What is the actual length of this pencil?



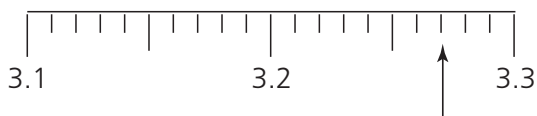
2.....cm

- 3 This is a car speedometer. It shows the speed in kilometres per hour. What is the speed of the car?



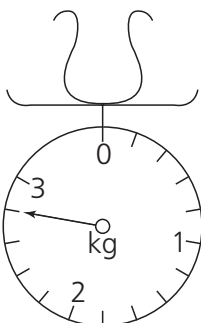
3.....km/h

- 4 This scale is in millimetres. What number is the arrow pointing to?



4.....mm

- 5 These scales show weight in kilograms. What is the weight of the bag?



5.....kg

Minimum mark

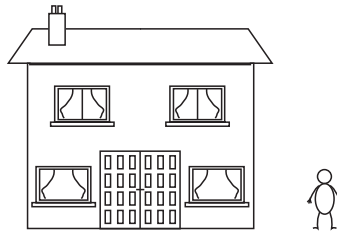
5	4	3	2	
A	B	C	D	E

Circle grade

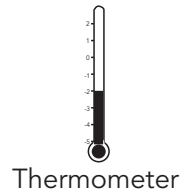
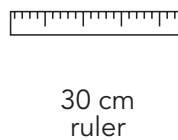
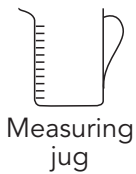
5

22 Measurement – 2

- 1 Which of these units would you use to measure the weight of a packet of crisps?
Choose from: grams, kilograms, litres, tonnes 1.....
- 2 Which of these units would you use to measure the weight of a lorry?
Choose from: grams, kilograms, litres, tonnes 2.....
- 3 Which of these units would you use to measure the length of a classroom?
Choose from: millimetres, centimetres, metres, kilometres 3.....
- 4 Which of these units would you use to measure the capacity of water in a fishtank?
Choose from: millilitres, centilitres, litres, kilolitres 4.....
- 5 Guess the height of Mr Smith. 5.....m
- 6 Guess the height of the house. 6.....m



You have these items:

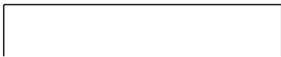


Which would you use to measure?

- 7 200 ml of milk 7.....
- 8 The temperature 8.....
- 9 The time taken to run 100 m 9.....
- 10 500 g of flour 10.....
- 11 The width of this worksheet 11.....
- 12 Your waist 12.....

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

23 Time - 1



This table shows the starting time, finishing time and length of time taken for some train journeys. Fill in the missing numbers:

	Starting time	Finishing time	Length of time taken for the journey	
1	07:28	10:45		1..... <input type="checkbox"/>
2	11:18	17:37		2..... <input type="checkbox"/>
3	16:14	20:11		3..... <input type="checkbox"/>
4	15:32	19:07		4..... <input type="checkbox"/>
5	08:42	13:26		5..... <input type="checkbox"/>
6	20:16		2 h 54 min	6..... <input type="checkbox"/>
7	16:27		3 h 12 min	7..... <input type="checkbox"/>
8	07:32		5 h 39 min	8..... <input type="checkbox"/>
9	16:48		1 h 34 min	9..... <input type="checkbox"/>
10	18:47		29 min	10..... <input type="checkbox"/>
11		17:28	3 h 15 min	11..... <input type="checkbox"/>
12		19:32	5 h 52 min	12..... <input type="checkbox"/>
13		10:16	3 h 8 min	13..... <input type="checkbox"/>
14		07:43	2 h 47 min	14..... <input type="checkbox"/>
15	23:51 (Friday)	04:17 (Saturday)		15..... <input type="checkbox"/>
16	22:47 (Monday)	01:31 (Tuesday)		16..... <input type="checkbox"/>



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

24 Time – 2



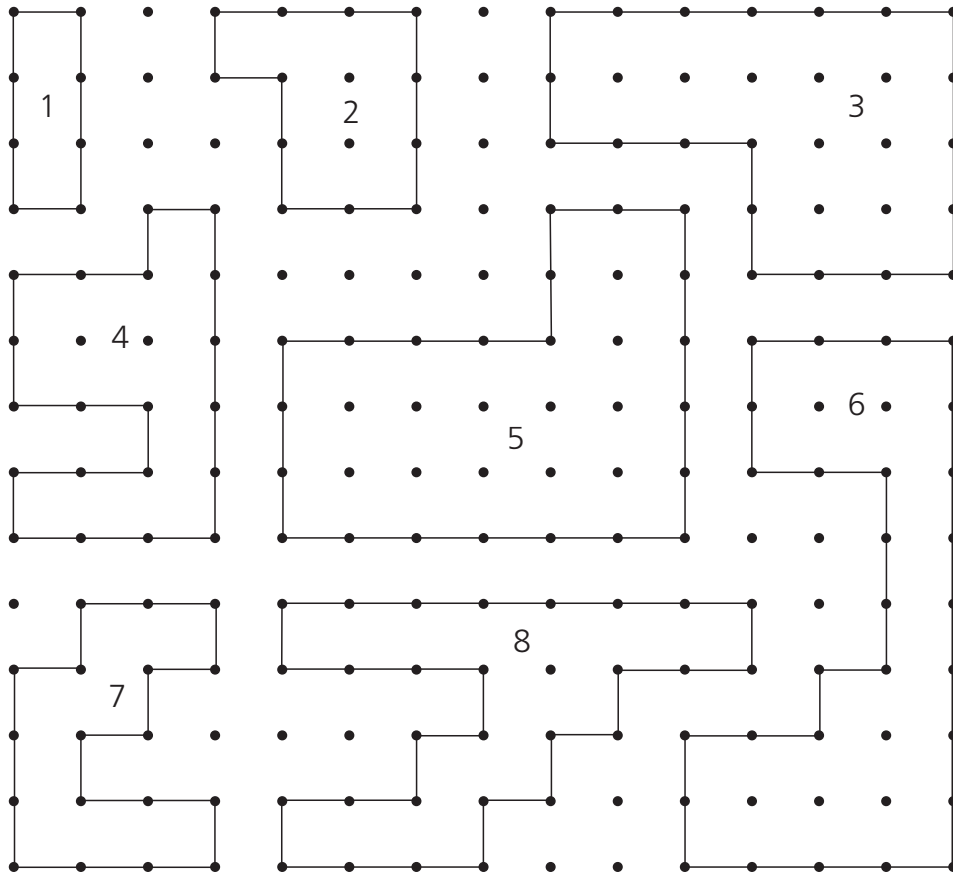
- 1 A commercial break had three adverts:
- Advert 1 lasted for 1 min 27 sec
 - Advert 2 lasted for 53 sec
 - Advert 3 lasted for 46 sec
- What was the total length of the commercial break? 1.....
- John took 47 minutes 26 seconds to run a race.
- 2 Paul took 37 seconds less time. How long did Paul take? 2.....
- 3 Mike took 1 min 52 seconds more time than John.
How long did Mike take? 3.....
- 4 Four girls took part in a relay race team.
Their times for each lap were:
- Anna – 1 min 18 sec
 - Beverley – 1 min 12 sec
 - Carolyn – 1 min 03 sec
 - Debbie – 58 sec
- The total time taken for the race is found by adding their times. How long did the team take? 4.....
- 5 It takes 3 minutes to boil an egg.
How many seconds is this? 5.....
- 6 It takes $1\frac{1}{2}$ hours to bake a cake.
How many minutes is this? 6.....
- 7 A bus journey took three-quarters of an hour.
How many minutes is this? 7.....
- 8 How many seconds are there in half an hour? 8.....



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

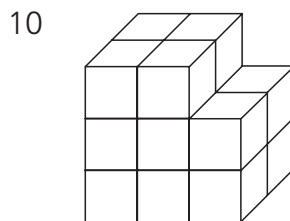
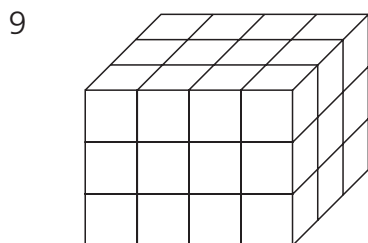
25 Perimeter, area and volume

Find a the perimeter and b the area of each shape.
The dots are 1 cm apart.

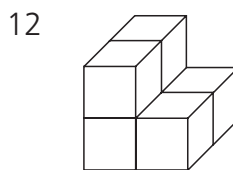
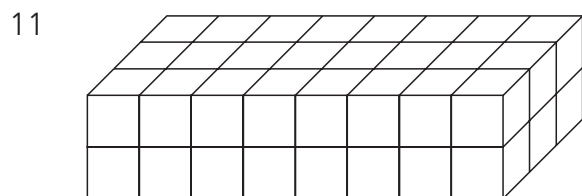


- 1acm
- 1bcm²
- 2acm
- 2bcm²
- 3acm
- 3bcm²
- 4acm
- 4bcm²
- 5acm
- 5bcm²
- 6acm
- 6bcm²
- 7acm
- 7bcm²
- 8acm
- 8bcm²

Find the volumes. Each small cube has a volume of 1 cm³.



- 9cm³
- 10cm³



- 11cm³
- 12cm³

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

_____ / 20

26 Frequency tables

- 1 These are the ages of pupils in a school hall.
Complete the table to show this information:

13 12 16 14 15
 13 12 13 15 13
 13 12 13 14 16
 12 14 13 15 13
 15 14 15 13 16

Ages	Tally	Frequency
12		
13		
14		
15		
16		
Total		

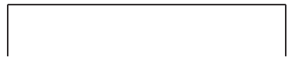
- 2 This list shows the number of sweets in some packets.
Complete the table to show this information:

60 51 53 64 58
 62 63 74 63 59
 57 62 52 61 65
 69 57 64 59 68
 56 64 72 63 71
 61 70 63 58 73

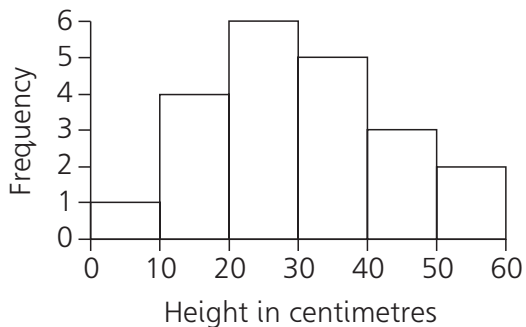
Number of sweets	Tally	Frequency
50-54		
55-59		
60-64		
65-69		
70-74		
Total		

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

27 Frequency diagrams

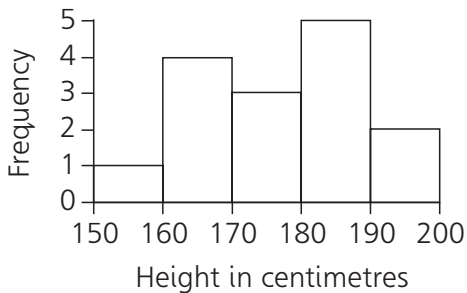


1 This frequency diagram shows the heights of some plants in a room:



- a How many plants were between 10 cm and 20 cm? 1a
- b How many plants were between 20 cm and 30 cm? 1b.....
- c How many plants were less than 20 cm? 1c.....
- d How many plants were between 10 cm and 30 cm? 1d
- e How many plants were more than 40 cm? 1e.....
- f How many plants were in the room? 1f.....

2 This frequency diagram shows the heights of men in a club:



- a How many men were between 180 cm and 190 cm? 2a
- b How many men were between 170 cm and 180 cm? 2b.....
- c How many men were under 170 cm? 2c.....
- d How many men were in the club? 2d

Complete these sentences:

- e There were 2 men between: cm andcm
- f There were 4 men between: cm andcm



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

_____ 12

28 Median and mode



Find a the median and b the mode:

1 3, 7, 5, 8, 8

1a

1b.....

2 2, 3, 1, 3, 4, 4, 1, 7, 1

2a

2b.....

3 5, 5, 6, 5, 8, 2, 8, 9

3a

3b.....

4 4, 7, 7, 4, 7, 3, 8, 7, 2, 1

4a

4b.....

5 These are the prices, in pence, of some cakes:

32, 34, 27, 30, 32, 26

Find a the median, b the mode.

5a

5b.....

6 These are the ages of some pupils in a football team:

18 21 17 21 16 16 21 20 17 23 24

Find a the median, b the mode.

6a

6b.....

7 These are the number of drawing-pins in some packets:

208 199 200 196 207 196 208 205 208 199

Find a the median, b the mode.

7a

7b.....

8 The median of these numbers is 7. Find the value of x

11, 9, 2, 9, 3, x

8.....

9 The mode of these numbers is 2. Find the median.

6 9 2 9 2 x

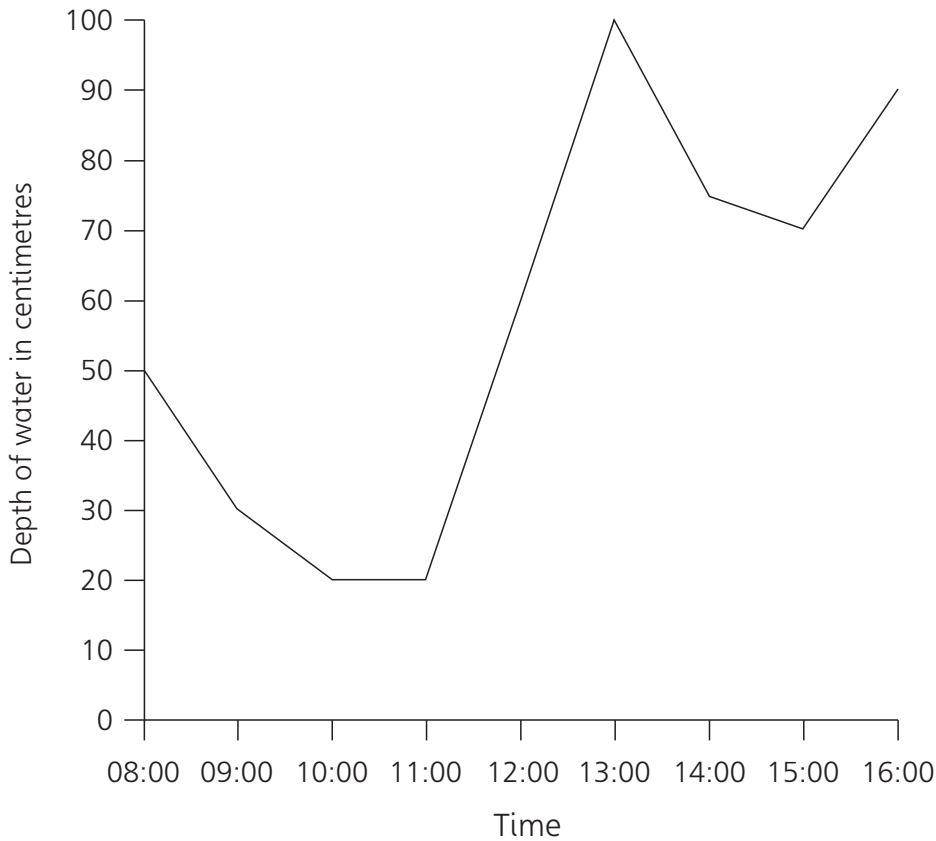
9.....



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

29 Line graphs

This is a line graph. It shows the depth of water in a tank.



1 What depth of water was in the tank at:

- a 08:00?
- b 10:00?
- c 12:00?
- d 14:00?

- 1a
- 1b.....
- 1c.....
- 1d

2 What was the:

- a The greatest depth of water in the tank?
- b The least depth of water in the tank?

- 2a
- 2b.....

3 At what time was the depth of water 60 cm?

3.....

4 At what time was the depth of water 100 cm?

4.....

Minimum mark

7	5	4	2	
A	B	C	D	E

Circle grade

30 Probability



A six sided die (dice) is thrown.

State whether the chance of each of the following events happening is certain, likely, even, unlikely or impossible.

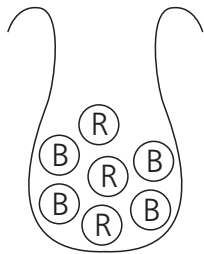
- | | | | |
|---|------------------------------|--------|--------------------------|
| 1 | Shaking more than 7 | 1..... | <input type="checkbox"/> |
| 2 | Shaking less than 7 | 2..... | <input type="checkbox"/> |
| 3 | Shaking a 5 | 3..... | <input type="checkbox"/> |
| 4 | Shaking an odd number | 4..... | <input type="checkbox"/> |
| 5 | Shaking a number less than 5 | 5..... | <input type="checkbox"/> |
| 6 | Shaking a 1 or 2 | 6..... | <input type="checkbox"/> |
| 7 | Shaking an 8 | 7..... | <input type="checkbox"/> |
| 8 | Shaking 3 or less | 8..... | <input type="checkbox"/> |

This bag contains some red and blue counters.

What is the probability of each of the following?

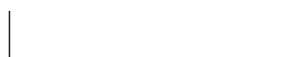
Choose from less than even, even or more than even.

Write 'Less', 'Even' or 'More' in the answer space:



R = Red
B = Blue

- | | | | |
|----|---|---------|--------------------------|
| 9 | Choosing a blue | 9..... | <input type="checkbox"/> |
| 10 | Choosing a red | 10..... | <input type="checkbox"/> |
| 11 | How many reds must be added to the bag to make the chance of choosing a red even? | 11..... | <input type="checkbox"/> |
| 12 | How many reds must be removed from the bag to make the chance of choosing a blue certain? | 12..... | <input type="checkbox"/> |



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

12