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1 Multiplying and dividing whole numbers by 10, 100 and 1000 – 1

1	4 x 60	2	80 x 300	1.....	☐
				2.....	☐
3	240 ÷ 30	4	2800 ÷ 40	3.....	☐
				4.....	☐
5	70 x 40	6	20 x 3000	5.....	☐
				6.....	☐
7	18 000 ÷ 600	8	1200 ÷ 300	7.....	☐
				8.....	☐
9	400 x 800	10	600 x 50	9.....	☐
				10.....	☐
11	3200 ÷ 80	12	42 000 ÷ 700	11.....	☐
				12.....	☐

13 1600 bottles are packed into boxes of 20.
How many boxes are needed? 13..... ☐

14 A ship can carry 90 000 tonnes. It is loaded with containers. Each container weighs 300 tonnes.
How many containers can be carried? 14..... ☐

15 A van is loaded with 300 boxes. Each box weighs 20 kilograms. What is the total weight of the boxes? 15..... ☐

16 Matches are sold in boxes of 50. How many boxes are needed for 30 000 matches? 16..... ☐

17 4800 kilograms of potatoes are placed in sacks. Each sack contains 60 kilograms.
How many sacks are required? 17..... ☐

18 Mrs Giles has 400 chickens. Each chicken lays 10 eggs.
How many eggs are laid? 18..... ☐

19 A school has 40 classes with 30 pupils in each class.
How many pupils does the school have? 19..... ☐

20 Farmer Giles has 1600 pigs. He puts them into fields. Each field holds 200 pigs.
How many fields are needed? 20..... ☐

Minimum mark	16	13	10	7		20
Circle grade	A	B	C	D	E	

2 Multiplying and dividing decimals by 10, 100 and 1000 – 2

1	3.8 x 10	2	6.27 x 100	1.....	☐
				2.....	☐
3	2.53 ÷ 10	4	68.2 ÷ 100	3.....	☐
				4.....	☐
5	4.71 x 10	6	6.32 x 1000	5.....	☐
				6.....	☐
7	482 ÷ 1000	8	3.61 ÷ 100	7.....	☐
				8.....	☐
9	30.2 x 100	10	48.6 x 10	9.....	☐
				10.....	☐
11	2.7 ÷ 10	12	5.73 ÷ 1000	11.....	☐
				12.....	☐
13	27.4 ÷ 100	14	6.83 x 1000	13.....	☐
				14.....	☐
15	0.037 x 10	16	0.052 x 100	15.....	☐
				16.....	☐
17	6 ÷ 10	18	3.71 x 1000	17.....	☐
				18.....	☐
19	18.2 ÷ 1000	20	5 ÷ 100	19.....	☐
				20.....	☐
21	3.61 x 100	22	0.273 ÷ 10	21.....	☐
				22.....	☐
23	0.2 ÷ 100	24	0.38 x 1000	23.....	☐
				24.....	☐

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

24

3 Multiplying and dividing decimals by 10, 100 and 1000 – 3

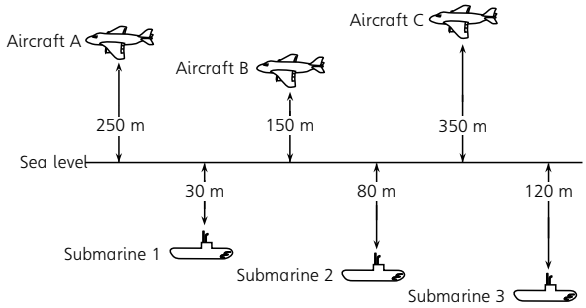
Choose the correct answers for these questions:

1	38.2 ÷ 100	a 3.82	b 0.382	c 38.20	1.....	☐
2	5.2 x 100	a 5.200	b 52	c 520	2.....	☐
3	4.6 ÷ 1000	a 0.46	b 0.046	c 0.0046	3.....	☐
4	6.3 x 10	a 60.30	b 6.30	c 63	4.....	☐
5	82 ÷ 1000	a 82 000	b 0.082	c 0.82	5.....	☐
6	0.284 x 1000	a 284	b 28.4	c 0.284000	6.....	☐
7	0.62 ÷ 10	a 0.062	b 6.2	c 620	7.....	☐
8	0.03 x 1000	a 0.03000	b 3	c 30	8.....	☐
9	A loaf of bread weighs 1.5 kilograms. What is the weight of 100 loaves?				9.....kg	☐
10	A man can walk 6.3 kilometres in one hour. How far can he walk in 10 hours?				10.....km	☐
11	Farmer Giles has 0.1 tonnes of potatoes. The potatoes are placed in 10 sacks. What weight of potatoes is in each sack?				11 .....t	☐
12	A bottle of wine contains 1.25 litres. How much wine is needed to fill 100 bottles?				12.....l	☐
13	A glass contains 0.32 litres. How many litres are needed to fill 1000 glasses?				13.....l	☐
14	7.2 tonnes of sand is divided between 10 people. How much does each receive?				14 .....t	☐
15	3260 tonnes of sand is loaded into 100 lorries. How much sand is in each lorry?				15 .....t	☐
16	6 kilograms of oranges are shared between 10 people. How much does each receive?				16.....kg	☐

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

16

4 Ordering, adding and subtracting negative numbers



1 What is the difference in height between Aircraft A and:

a Aircraft B? b Submarine 1? 1a .....m ☐

1b.....m ☐

c Submarine 2? d Submarine 3? 1c.....m ☐

1d .....m ☐

2 What is the difference in height between Submarine 2 and:

a Submarine 1? b Submarine 3? 2a .....m ☐

2b.....m ☐

c Aircraft B? d Aircraft C? 2c.....m ☐

2d .....m ☐

What are the heights of these aircraft above sea level?

3 Aircraft D is 50 m below Aircraft B 3..... ☐

4 Aircraft E is 50 m above Submarine 1 4..... ☐

5 Aircraft F is 700 m above Submarine 2 5..... ☐

6 Aircraft G is 350 m above Submarine 3 6..... ☐

What are the depths of these submarines below sea level?

7 Submarine 4 is 300 m below Aircraft A 7..... ☐

8 Submarine 5 is 60 m below Submarine 2 8..... ☐

9 Submarine 6 is 10 m above Submarine 3 9..... ☐

10 Submarine 7 is 480 m below Aircraft C 10..... ☐

Place the following lists of numbers in order of size, smallest first:

11 –3, 8, –1, –4 12 2, 0, –3, –4 11..... ☐

12..... ☐

13 –8, –6, –1, –4 14 0, –3, 7, –5 13..... ☐

14..... ☐

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

20

5 Addition, subtraction, multiplication and division of decimals

1 $\begin{array}{r} 43.8 \\ 2.67 \\ +\ 0.18 \\ \hline \end{array}$

2 $\begin{array}{r} 68.37 \\ 2.18 \\ +\ 17.06 \\ \hline \end{array}$

3 $\begin{array}{r} 4.88 \\ -\ 3.64 \\ \hline \end{array}$

4 $\begin{array}{r} 5.73 \\ -\ 1.39 \\ \hline \end{array}$

5 $\begin{array}{r} 27.28 \\ -\ 11.79 \\ \hline \end{array}$

6 $\begin{array}{r} 6.8 \\ -\ 1.93 \\ \hline \end{array}$

7 $\begin{array}{r} 2.63 \\ \times\ 8 \\ \hline \end{array}$

8 $\begin{array}{r} 5.7 \\ \times\ 0.03 \\ \hline \end{array}$

9 $\begin{array}{r} 4.05 \\ \times\ 0.07 \\ \hline \end{array}$

10 $\begin{array}{r} 25.6 \\ \times\ 0.04 \\ \hline \end{array}$

11 $\begin{array}{r} 15.3 \\ \times\ 0.2 \\ \hline \end{array}$

12 $\begin{array}{r} 7.63 \\ \times\ 4 \\ \hline \end{array}$

13 $0.4\overline{)36}$

14 $0.7\overline{)4.34}$

15 $0.03\overline{)1.275}$

16 $5\overline{)6.8}$

17 38 + 7.6 + 3.28

18 6.8 – 0.37

19 2.72 x 0.2

20 8 ÷ 0.4

1..... ☐

2..... ☐

3..... ☐

4..... ☐

5..... ☐

6..... ☐

7..... ☐

8..... ☐

9..... ☐

10..... ☐

11..... ☐

12..... ☐

13..... ☐

14..... ☐

15..... ☐

16..... ☐

17..... ☐

18..... ☐

19..... ☐

20..... ☐

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

20

6 Calculating fractional and percentage parts – 1

1	Find $\frac{5}{8}$ of 3 m	1 ..... ☐
2	Find $\frac{2}{3}$ of 4.5 kg	2 ..... ☐
3	Find $\frac{4}{5}$ of 700 g	3 ..... ☐
4	Find $\frac{7}{8}$ of 3 l	4 ..... ☐
5	Find $\frac{3}{10}$ of 55 km	5 ..... ☐
6	Find $\frac{7}{16}$ of 120 g	6 ..... ☐
7	Find $\frac{3}{20}$ of 400 ml	7 ..... ☐
8	Find $\frac{1}{8}$ of 1 kg	8 ..... ☐
9	Find 10% of 30	9 ..... ☐
10	Find 5% of 18	10 ..... ☐
11	Find 20% of 72	11 ..... ☐
12	Find 15% of 12	12 ..... ☐
13	Find 25% of 61	13 ..... ☐
14	Find 35% of 18	14 ..... ☐
15	Find 70% of 3	15 ..... ☐
16	Find 62% of 230	16 ..... ☐
17	Find 71% of 600	17 ..... ☐
18	Find 37% of 270	18 ..... ☐
19	Find 23% of 18	19 ..... ☐
20	Find 6% of 120	20 ..... ☐

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

20

7 Calculating fractional and percentage parts – 2

1 In a sale a discount of 30% is given.
What is the discount on these items?

a Gloves at £7.20 b Trousers at £18.40 1a £ ..... ☐
1b £ ..... ☐
c Socks at £3.50 d Hat at £16.80 1c £ ..... ☐
1d £ ..... ☐

2 The price of cars increases by 12%.
What is the increase on these cars?

a £12 000 b £18 000 2a £ ..... ☐
2b £ ..... ☐
c £23 000 d £7000 2c £ ..... ☐
2d £ ..... ☐

3 A 15% service charge is added to the cost of meals in a restaurant. Calculate the service charge for these meals:

a £18 b £32 3a £ ..... ☐
3b £ ..... ☐
c £14.60 d £27.20 3c £ ..... ☐
3d £ ..... ☐

4 A garage gives a discount of $2\frac{1}{2}$% for cash.
Work out the discount in these bills:

a £200 b £320 4a £ ..... ☐
4b £ ..... ☐
c £168 d £426 4c £ ..... ☐
4d £ ..... ☐

5 $17\frac{1}{2}$% VAT is added to the following prices.
Calculate the VAT:

a £180 b £224 5a £ ..... ☐
5b £ ..... ☐
c £368 d £430 5c £ ..... ☐
5d £ ..... ☐

6 Prices in a shop are reduced by $\frac{1}{5}$.
Calculate the reductions on these prices:

a £8 b £13.40 6a £ ..... ☐
6b £ ..... ☐
c £12.60 d £18.75 6c £ ..... ☐
6d £ ..... ☐

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

24

8 Long multiplication and division without a calculator

1 $\begin{array}{r} 537 \\ \times\ 68 \\ \hline \end{array}$

2 $\begin{array}{r} 283 \\ \times\ 47 \\ \hline \end{array}$

3 $\begin{array}{r} 482 \\ \times\ 47 \\ \hline \end{array}$

4 $\begin{array}{r} 526 \\ \times\ 39 \\ \hline \end{array}$

5 $\begin{array}{r} 684 \\ \times\ 27 \\ \hline \end{array}$

6 $\begin{array}{r} 298 \\ \times\ 73 \\ \hline \end{array}$

7 $18\overline{)817}$ r

8 $19\overline{)529}$ r

9 $27\overline{)903}$ r

10 $63\overline{)874}$ r

11 $31\overline{)483}$ r

12 $39\overline{)823}$ r

13 A bus can carry 47 passengers.

a How many buses are required to carry 1222 passengers?

b How many buses are required to carry 893 passengers?

c How many passengers can 27 buses carry?

d How many passengers can 83 buses carry?

14 A machine can produce 473 nails in one hour.

a How many nails can it produce in 18 hours?

b How many nails can it produce in 27 hours?

15 A school hall has 1497 chairs.

a They are placed in rows of 18. How many rows are there and how many chairs are left over?

b They are placed in rows of 22. How many rows are there and how many chairs are left over?

1..... ☐
2..... ☐
3..... ☐
4..... ☐
5..... ☐
6..... ☐
7..... ☐
8..... ☐
9..... ☐
10..... ☐
11..... ☐
12..... ☐
13..... ☐
14..... ☐
15..... ☐
16..... ☐
17..... ☐
18..... ☐
19.....r..... ☐
20.....r..... ☐

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

20

9 Checking and estimating – 1

Check the following sums. If the answer is correct write 'Correct' in the answer space. If the answer is wrong, write the answer you get in the answer column.

1
$$\begin{array}{r} 372 \\ +\ 639 \\ \hline 1011 \end{array}$$

2
$$\begin{array}{r} 427 \\ +\ 316 \\ \hline 7313 \end{array}$$

1..... ☐

2..... ☐

3
$$\begin{array}{r} 708 \\ -\ 319 \\ \hline 389 \end{array}$$

4
$$\begin{array}{r} 897 \\ -\ 368 \\ \hline 531 \end{array}$$

3..... ☐

4..... ☐

5
$$\begin{array}{r} 573 \\ +\ 648 \\ \hline 1221 \end{array}$$

6
$$\begin{array}{r} 437 \\ -\ 178 \\ \hline 341 \end{array}$$

5..... ☐

6..... ☐

Fill in the missing rows of numbers:

7
$$\begin{array}{r} 638 \\ +\ \ldots\ldots \\ \hline 1347 \end{array}$$

8
$$\begin{array}{r} 1364 \\ -\ \ldots\ldots \\ \hline 927 \end{array}$$

7..... ☐

8..... ☐

9
$$\begin{array}{r} \ldots\ldots \\ +\ 536 \\ \hline 803 \end{array}$$

10
$$\begin{array}{r} 861 \\ -\ \ldots\ldots \\ \hline 352 \end{array}$$

9..... ☐

10..... ☐

11
$$\begin{array}{r} 293 \\ +\ \ldots\ldots \\ \hline 917 \end{array}$$

12
$$\begin{array}{r} \ldots\ldots \\ -\ 864 \\ \hline 178 \end{array}$$

11..... ☐

12..... ☐

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

12

10 Checking and estimating – 2

Estimate the cost of the following.

You must show your working:

1	899 books at £8.95 each	1 £ ..... ☐
2	603 boxes of chalk at £0.49	2 £ ..... ☐
3	29 m^2 of carpet at £7.95 per m^2	3 £ ..... ☐
4	71 bottles of wine at £3.95 each	4 £ ..... ☐
5	68 books at £6.10 each	5 £ ..... ☐
6	81 rulers at £0.28	6 £ ..... ☐
7	19 litres of petrol at 89p per litre	7 £ ..... ☐
8	598 chairs at £29.95	8 £ ..... ☐
9	21 tables at £19.95	9 £ ..... ☐
10	198 stools at £18.10	10 £ ..... ☐
11	4987 pencils at £0.11	11 £ ..... ☐
12	21 umbrellas at £4.99	12 £ ..... ☐
13	72 cans of cola at £0.28	13 £ ..... ☐
14	393 nails at £0.02	14 £ ..... ☐
15	48 glasses at £0.52	15 £ ..... ☐
16	203 cups at £0.39	16 £ ..... ☐

Minimum mark	13	11	8	5		16
Circle grade	A	B	C	D	E	

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11 Writing in algebra

1 John is C cm tall. Peter is 5 cm taller.
How tall is Peter? 1..... ☐

2 Carolyn has L lemons. She eats 2.
How many are left? 2..... ☐

3 Adam has B books. Sally has Y books.
How many do they have altogether? 3..... ☐

4 Four boys earned £Y between them for washing a car. They divided the money equally.
How much did each earn? 4 £ ..... ☐

5 A bread roll costs Y pence. What is the cost of 8 bread rolls? 5.....p ☐

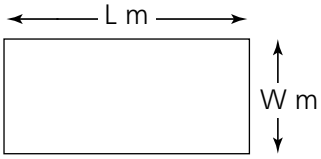
6 Mrs Watson buys 3 kg of cheese at £y per kilogram.

a What is the total cost in £'s? 6a £ ..... ☐

b What is the total cost in pence? 6b.....p ☐

7 Andrea bought X sweets. She ate Y sweets.
How many sweets were left? 7..... ☐

8 Here is a room:
It is L m long and
W m wide.



a What is the perimeter? 8a .....m ☐

b What is the area? 8b .....m^2 ☐

The room is H m high.

c What is the volume? 8c .....m^3 ☐

9 Y apples are shared between B boys.
How many apples does each boy receive? 9..... ☐

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

12

12 Using algebra – 1

1 A is 6 more than B.

a What is the value of A when B is 8? 1a .....

b What is the value of A when B is -3? 1b.....

c What is the value of B when A is 10? 1c.....

d What is the value of B when A is -10? 1d .....

2 I think of a number, I double it and add 5.
The answer is 29. What number did I think of? 2.....

3 The difference between two numbers is 12.
The smaller number is 17. What is the larger number? 3.....

4 If I divide N by 4 the answer is 6.
What is the value of N? 4.....

5 A is 3 more than B. B is half of C.

a If C is 8, what is A? 5a .....

b If A is 17, what is C? 5b.....

6 If I take-away 5 from Y the answer is 6.
What is the value of Y? 6.....

7 If I multiply M by 6 the answer is 48.
What is the value of M? 7.....

8 C is half of A. A is half of H.
If H is 8, what is the value of C? 8.....

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

12

13 Using algebra – 2

Given a = 1, b = 2, c = 3, d = 4, find the values of:

1	a + c	2	2a	1.....	☐
				2.....	☐
3	3d	4	abc	3.....	☐
				4.....	☐
5	bd + ac	6	3ab	5.....	☐
				6.....	☐
7	$\frac{1}{2}$cd	8	3c + 2a	7.....	☐
				8.....	☐
9	d(a + b + c)	10	c(a + b)	9.....	☐
				10.....	☐

A = B – C

11	Find A when B = 8 and C = 2	11.....	☐
12	Find A when B = 3 and C = 5	12.....	☐
13	Find B when A = 10 and C = 3	13.....	☐
14	Find B when A = 4 and C = 7	14.....	☐
15	Find C when A = 12 and B = 23	15.....	☐
16	Find C when A = -3 and B = 8	16.....	☐

The formula A = $\frac{1}{2}$BH can be used to find the area of a triangle, where A is the area, B is the base and H is the height. Use the formula to find A when:

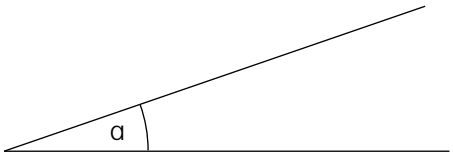
17	B = 3 H = 4	17.....	☐
18	B = 6 H = 4	18.....	☐
19	B = 12 H = 8	19.....	☐
20	B = 11 H = 5	20.....	☐

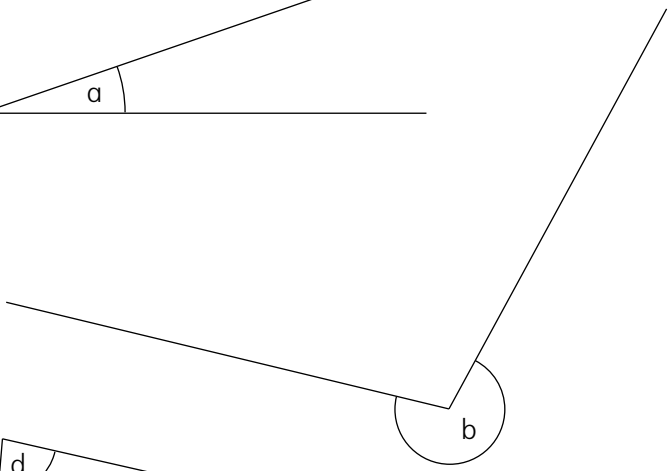
Minimum mark	16	13	10	7	
Circle grade	A	B	C	D	E

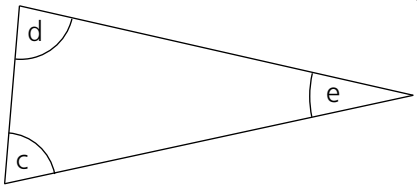
20

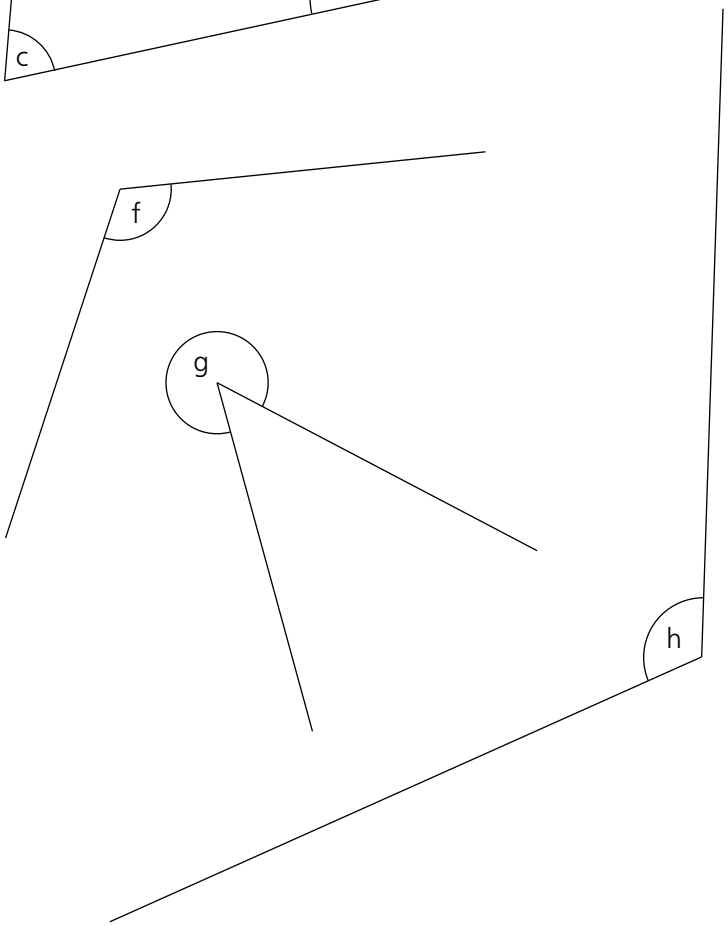
14 Using a protractor

Measure each angle:









a= ..... ☐

b=..... ☐

c= ..... ☐

d= ..... ☐

e=..... ☐

f= ..... ☐

g= ..... ☐

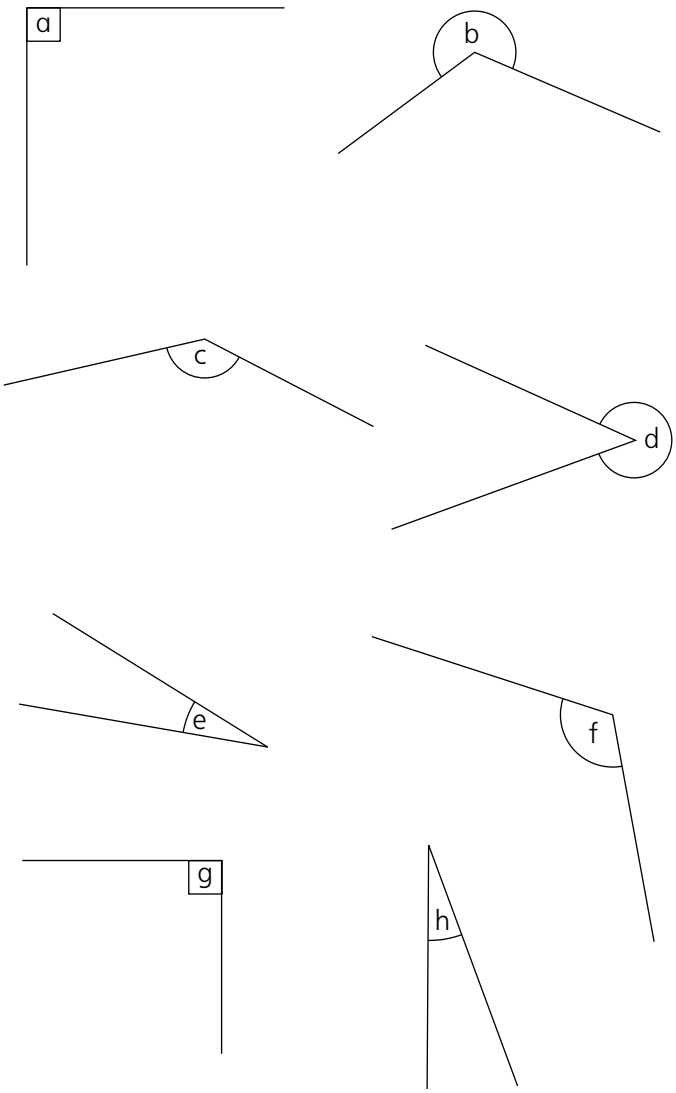
h=..... ☐

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

8

15 Angles

Give the special names of these angles:



a=..... ☐

b=..... ☐

c= ..... ☐

d=..... ☐

e=..... ☐

f= ..... ☐

g=..... ☐

h=..... ☐

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

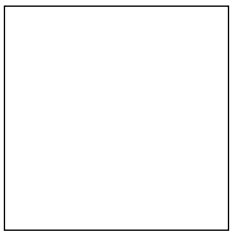
8

16 Symmetry of 2-D shapes – 1

a Draw the axis of symmetry on these shapes.

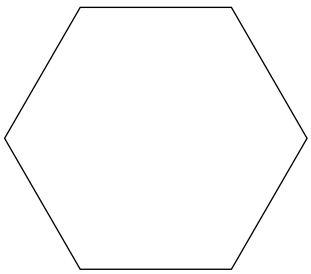
b Name the shapes.

1a



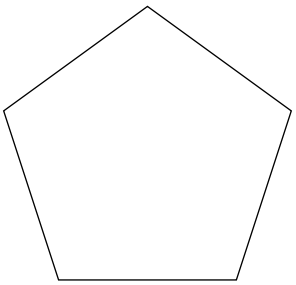
1b..... ☐

2a ☐



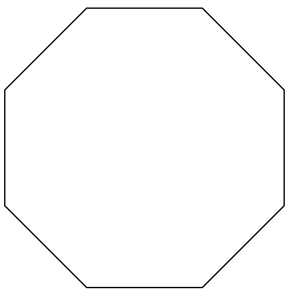
2b..... ☐

3a ☐



3b..... ☐

4a ☐



4b..... ☐

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

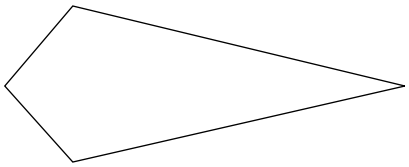
8

17 Symmetry of 2-D shapes – 2

Use dotted lines to draw the axis of symmetry on these shapes. If a shape does not have any axes of symmetry write 'none' in the shape.

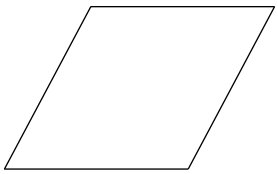
1 Rectangle

2 Kite

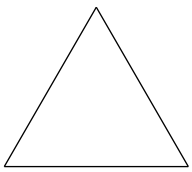


3 Parallelogram

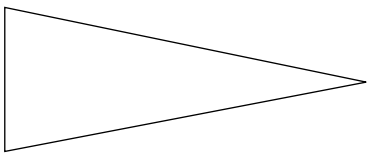
4 Rhombus



5 Equilateral triangle



6 Isosceles triangle



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

6

18 Rough metric equivalents of imperial units

Here are some measurements given in imperial units.
Convert the imperial units to metric units.

1 A ruler is 12 inches long.
What is this in centimetres? 1.....cm

2 A book weighs 2 pounds.
What is this in kilograms? 2.....kg

3 The distance from London to Inverness is 500 miles.
What is this in kilometres? 3.....km

4 Mr Smith put 10 gallons of petrol in his car.
How many litres was this? 4.....l

5 Amy is 5 feet tall. What is this in centimetres? 5.....cm
(12 inches = 1 foot)

6 Paul is 6 feet tall. Alan is 2 metres tall.
Who is taller? 6.....

7 Joanne drinks a pint of milk.
Debra drinks a litre of milk.
Who drinks more? 7.....

8 A baby weighs 8 pounds.
What is this in kilograms? 8.....kg

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

8

19 Converting one metric unit to another

1	Convert 38 millimetres into centimetres	1 .....cm	☐
2	Convert 225 centimetres into metres	2.....m	☐
3	Convert 2308 grams into kilograms	3.....kg	☐
4	Convert 3.6 tonnes into kilograms	4.....kg	☐
5	Convert 2.6 centimetres into millimetres	5 .....mm	☐
6	Convert 128 centilitres into litres	6.....l	☐
7	Convert 0.8 litres into millilitres	7.....ml	☐
8	Convert 0.4 metres into centimetres	8.....cm	☐
9	Convert 3.26 kilograms into grams	9 .....g	☐
10	Convert 35 millilitres into centilitres	10.....cl	☐
11	Write 350 metres in kilometres	11.....km	☐
12	Write 1.08 litres in centilitres	12 cl	☐
13	Write 285 kilograms in tonnes	13 .....t	☐
14	Write 1.3 kilometres in metres	14.....m	☐
15	Write 70 grams in kilograms	15.....kg	☐
16	Write 6.2 centilitres in millilitres	16.....ml	☐
17	Write 0.07 tonnes in kilograms	17.....kg	☐
18	Write 1.2 metres in millimetres	18 .....mm	☐
19	Write 0.05 litres in millilitres	19.....ml	☐
20	Write 32.8 millimetres in centimetres	20.....cm	☐

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

20

20 Making sensible estimates

Estimate the following using metric units.
You **must** state the unit, eg kilometres.

1	The capacity of a can of cola	1.....	☐
2	The weight of a cat	2.....	☐
3	Your height	3.....	☐
4	Your weight	4.....	☐
5	The weight of this worksheet	5.....	☐
6	The height of your maths classroom	6.....	☐
7	The length of your maths classroom	7.....	☐
8	The height of the door in your maths classroom	8.....	☐

Which metric unit would you use to measure the following?

9	The weight of a lorry	9.....	☐
10	The weight of a suitcase	10.....	☐
11	The length of a mouse	11.....	☐
12	The distance from London to New York	12.....	☐
13	The capacity of a glass	13.....	☐
14	The capacity of a swimming pool	14.....	☐
15	The height of a block of flats	15.....	☐
16	The length of a flea	16.....	☐

Minimum mark	13	11	8	5		16
Circle grade	A	B	C	D	E	

21 Mean and range – 1

Find a the range
b the mean
of the following lists of numbers:

1 6, 2, 4, 5
1a ..... ☐
1b..... ☐

2 7, 3, 8, 2, 12
2a ..... ☐
2b..... ☐

3 18, 27, 31, 16, 42
3a ..... ☐
3b..... ☐

4 223, 428, 617, 529, 183
4a ..... ☐
4b..... ☐

5 27, 13, 18, 20, 25, 27, 32, 47
5a ..... ☐
5b..... ☐

6 16, 16, 81, 43, 28, 19, 36, 26, 39, 27
6a ..... ☐
6b..... ☐

7 30, 62, 81, 43, 28, 19, 36, 26, 39, 27
7a ..... ☐
7b..... ☐

8 3.6, 2.4, 1.7, 3.2, 5.6
8a ..... ☐
8b..... ☐

9 13.8, 7.9, 27.6, 43.8
9a ..... ☐
9b..... ☐

10 The number of pupils attending a school in one week were: 287, 312, 298, 306, 308
10a ..... ☐
10b..... ☐

11 The number of people attending a cinema on 8 consecutive days were:
203, 173, 160, 158, 137, 175, 162, 168
11a ..... ☐
11b..... ☐

12 The number of pupils in ten classrooms were:
27, 28, 30, 26, 22, 28, 24, 26, 21, 30
12a ..... ☐
12b..... ☐

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

24

22 Mean and range – 2

1 This table shows the number of loaves of bread delivered to some houses in a street:

Loaves of bread	0	1	2	3	4
Number of houses	3	5	4	3	1

Find the mean number of loaves per house. 1..... ☐

2 This table shows the number of goals scored by a football team during 20 games:

Number of goals	0	1	2	3	4	5
Number of games	2	3	6	5	3	1

Find the mean number of goals per game. 2..... ☐

3 The mean age of four men in a pop group was 21. Another man aged 27 joined the group. What is the mean age of the five men? 3..... ☐

4 The mean age of five women in a room was 32. One woman aged 35 left the room. What is the mean age of the four women left in the room? 4..... ☐

5 The mean age of eight people in a room was 28. Two more people aged 29 and 34 enter the room. What is the mean age of the people in the room? 5..... ☐

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

5

23 Comparing two sets of data

1 This table shows the marks (out of 50) obtained in some tests by two pupils:

Anna	28	36	41	36	29	30	29	32
Barry	11	48	18	49	21	16	15	27

Use the range and mean to decide which pupil is better.

Use this information to compare the results.

Comparison

.....

.....

.....

.....

Anna

Range ..... ☐

Mean ..... ☐

Barry

Range ..... ☐

Mean ..... ☐

Comparison ☐

2 This table shows the time taken by 10 boys and 8 girls to thread a needle. The time is in seconds:

Boys					Girls			
48	83	32	3	18	3	18	11	16
2	53	64	18	23	21	5	4	10

Use the range, median and mean to compare the times taken by the boys and girls.

Use your findings to compare the boys and girls.

Comparison .....

.....

.....

.....

Boys

Range ..... ☐

Median ..... ☐

Mean ..... ☐

Girls

Range ..... ☐

Median ..... ☐

Mean ..... ☐

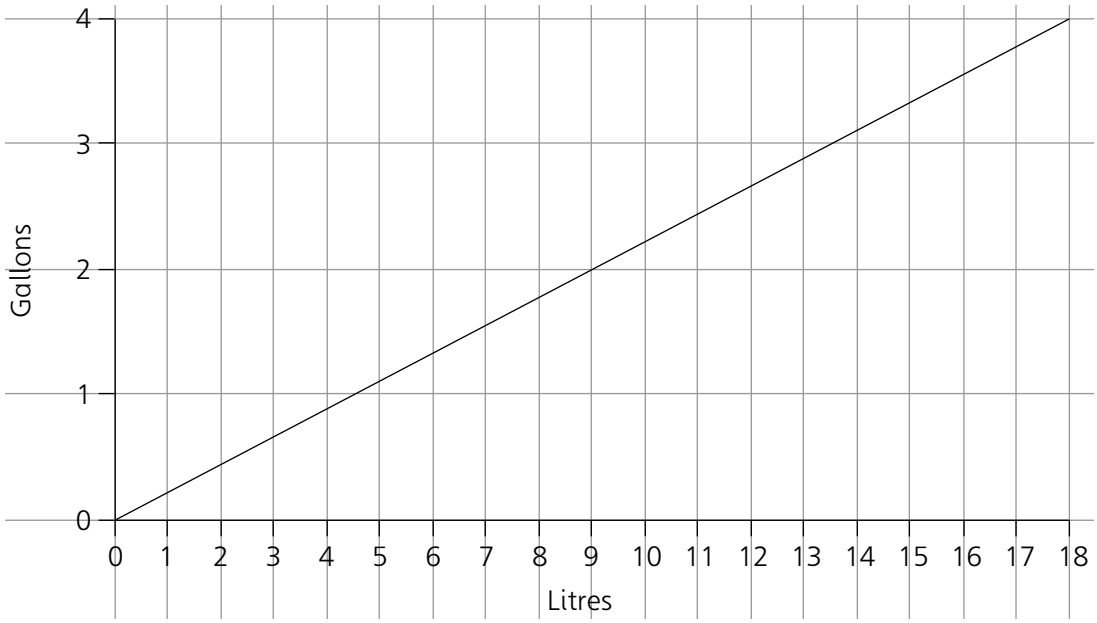
Comparison ☐

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

12

24 Using and drawing conclusions from graphs – 1

This is a conversion graph for changing gallons into litres:



1 Mr Wright puts 3 gallons of petrol into his car. How many litres is this? 1..... ☐

2 Mrs Read bought 18 litres of petrol. How many gallons was this? 2..... ☐

3 John bought a one gallon can of oil. How many litres was this? 3..... ☐

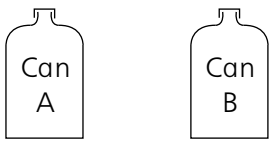
4 The petrol tank of a lorry holds 20 gallons. How many litres is this? 4..... ☐

5 A petrol tanker delivered 4000 gallons of petrol to a filling station. How many litres is this? 5..... ☐

6 A tank holds 135 litres of water. How many gallons is this? 6..... ☐

7 A ship holds 10 000 gallons of oil. How many litres is this? 7..... ☐

8 Which can holds more? 8 Can ..... ☐

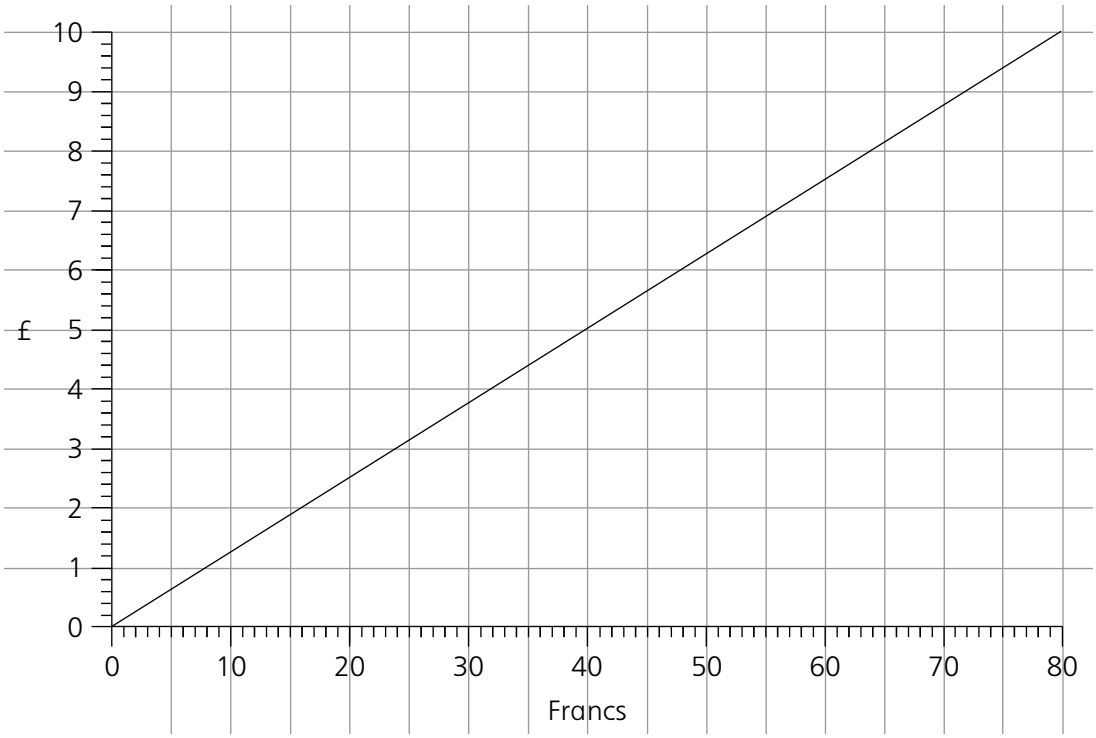


Minimum mark	7	5	4	2	
Circle grade	A	B	C	D	E

8

25 Using and drawing conclusions from graphs – 2

This is a conversion graph for changing £ into Francs:



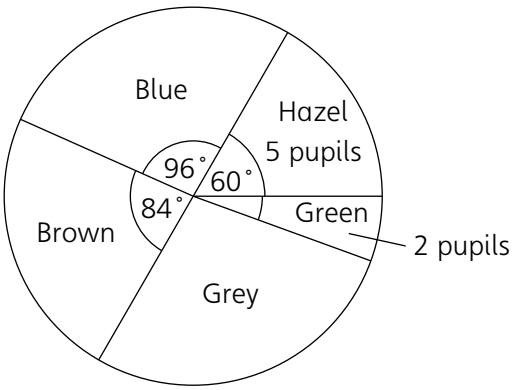
1	How many Francs will I receive for £5?	1.....
2	How many Francs will I receive for £2?	2.....
3	How many £ will I receive for 80 Francs?	3.....
4	How many £ will I receive for 50 Francs?	4.....
5	How many Francs will I receive for £500?	5.....
6	How many Francs will I receive for £750?	6.....
7	How many £ will I receive for 200 Francs?	7.....
8	How many £ will I receive for 600 Francs?	8.....

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

8

26 Understanding pie charts – 1

1 This pie chart shows the eye colours of pupils in a class:



a How many pupils had blue eyes? 1a ..... ☐

b How many pupils had brown eyes? 1b..... ☐

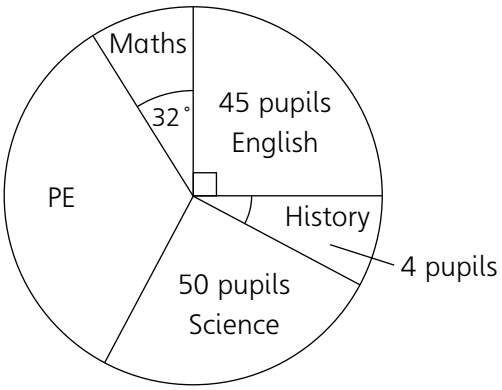
c What is the angle for green eyes? 1c..... ☐

d What is the angle for grey eyes? 1d ..... ☐

e How many pupils had grey eyes? 1e..... ☐

f How many pupils took part in the survey? 1f ..... ☐

2 This pie chart shows the favourite subjects of some children:



a How many pupils chose maths? 2a ..... ☐

b What is the angle for history? 2b..... ☐

c What is the angle for science? 2c..... ☐

d What is the angle for PE? 2d ..... ☐

e How many pupils chose PE? 2e..... ☐

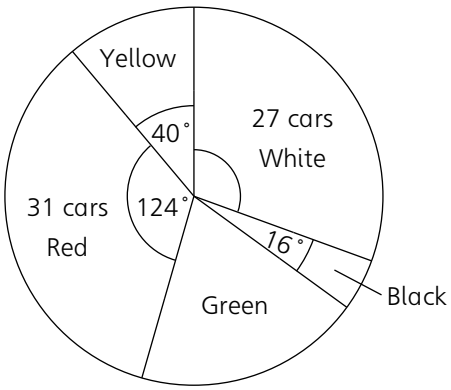
f How many pupils took part in the survey? 2f ..... ☐

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

12

27 Understanding pie charts – 2

1 This pie chart shows the colours of cars in a car park:



a How many cars were yellow? 1a .....

b How many cars were black? 1b.....

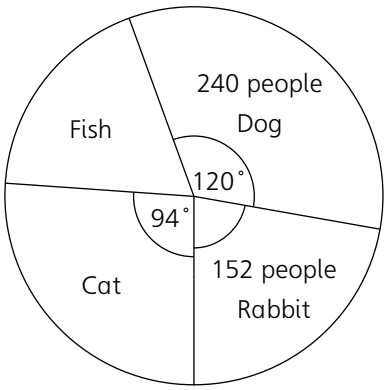
c What is the angle for white? 1c.....

d How many cars were green? 1d .....

e What is the angle for green? 1e.....

f How many cars were in the car park? 1f .....

2 This pie chart shows the favourite pets of people in a survey:



a How many people chose cats? 2a .....

b What is the angle for rabbit? 2b.....

c How many people chose fish? 2c.....

d What is the angle for fish? 2d .....

e Which is the favourite pet? 2e.....

f How many people took part in the survey? 2f .....

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

12

28 The probability scale – 1

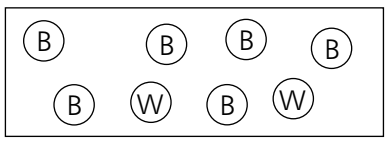
Each box contains black and white counters. A girl is blindfolded and chooses one disc from each box. Using an arrow, indicate the probability of choosing:

a A black disc

b A white disc.

B = Black
W = White

1



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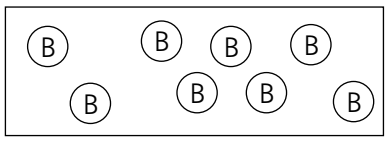

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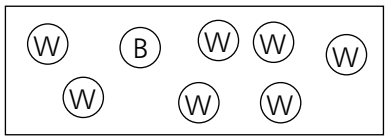

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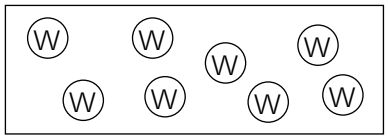

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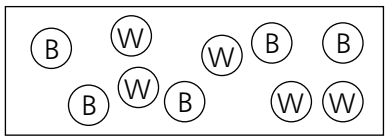

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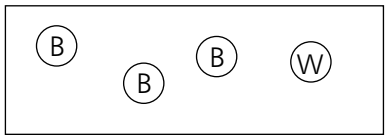
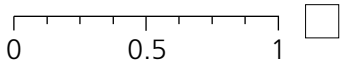
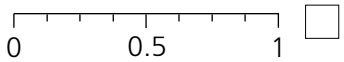
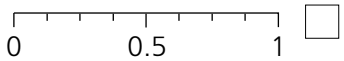
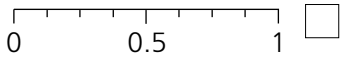
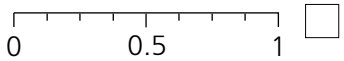


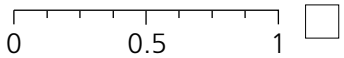
1a 

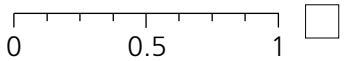
1b 

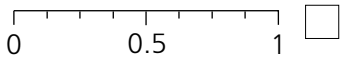
2a 

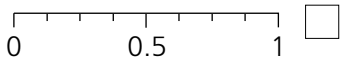
2b 

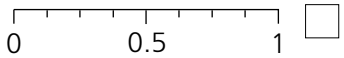
3a 

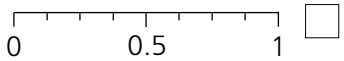
3b 

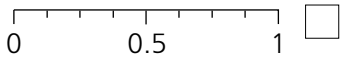
4a 

4b 

5a 

5b 

6a 

6b 

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

12

29 The probability scale – 2

Show the probability of the following events on the probability scales using an arrow:

1 Throwing a six sided die and getting a 3

2 Throwing a six sided die and getting a 6

3 Throwing a six sided die and getting a 7

4 Throwing a six sided die and getting an odd number

5 Throwing a six sided die and getting an even number

6 Throwing a six sided die and getting 5 or more

7 Throwing a six sided die and getting less than 6

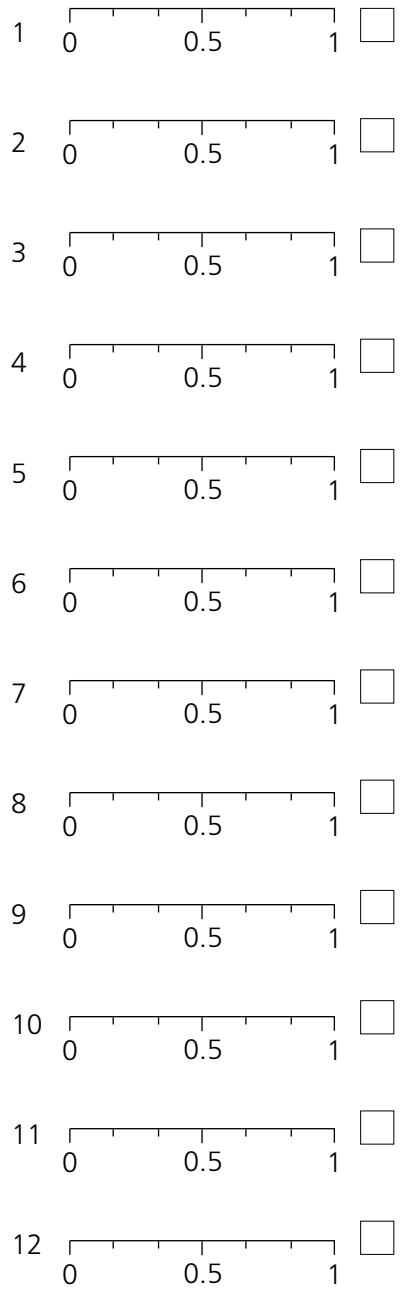
8 Throwing a six sided die and getting 3 or less

9 Throwing a six sided die and getting 3 or more

10 Throwing a six sided die and getting 1 or 2

11 Tossing a coin and landing on tails

12 Tossing a coin and landing on its edge



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

12

30 Justifying probabilities

1 Alan, Barry and Chris compete in a race.
There are six different possible results.
List all of the possible results. Two have been done for you.

1 A B C
A C B
.....
.....
.....
.....

2 Anna, Beverley and Carol compete in a race.
Anna beats Carol. List all of the possible results

2.....
.....
.....

3 The probability of a man wearing glasses is $\frac{1}{5}$
In a group of 2000 men, how many would you expect:

a To wear glasses? 3a .....

b Not to wear glasses? 3b.....

4 Two coins are tossed. List all of the different ways they can land. Use H for heads and T for tails.

4.....
.....
.....
.....

How would you decide the probability of each of the following? Choose A equally likely outcomes, or B experimental evidence. Write A or B on the answer line.

5 A die is thrown. What proportion of times is 6 scored? 5.....

6 One hundred drawing-pins are dropped onto the floor. What proportion land point up? 6.....

7 Anna and Karen compete in some cycle races. What proportion of the time will Anna win? 7.....

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

8