AQA - F - Jun '24 - P2

2

Answer **all** questions in the spaces provided.

Do not write outside the box

1 (a) Write 0.27 as a fraction.

$\frac{27}{100}$

[1 mark]

Answer _____

1 (b) Write $\frac{2}{5}$ as a decimal.

$5\overline{)2^{2}0}$ 0.4

[1 mark]

Answer 0.4

1 (c) Write 0.35 as a percentage. $\times 100$

[1 mark]

Answer 35 %

Do not write outside the box

2 (a) Simplify fully $x + 4x$

[1 mark]

Answer 5x

2 (b) Simplify fully $5 \times 2w$

[1 mark]

Answer 10w

2 (c) Simplify fully $2m \div m$

[1 mark]

Answer 2

2 (d) Simplify fully $y \times y \times y$

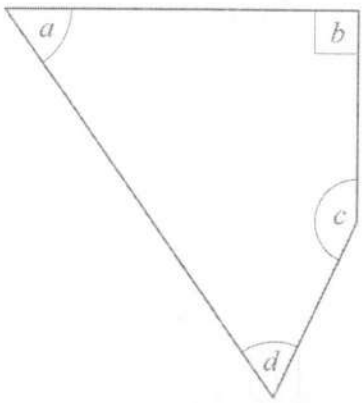
[1 mark]

Answer y^3

7

Do not write outside the box

3 Here is a quadrilateral.



3 (a) Write down the letter of the obtuse angle.

[1 mark]

Answer C

3 (b) Write down the letter of an acute angle.

[1 mark]

Answer a / d

3 (c) How many lines of symmetry does the shape have?

[1 mark]

Answer 0

Do not write outside the box

4 (a) One lettuce costs £1.29 x 7

How much do **seven** of these lettuces cost?

[1 mark]

Answer £ 9.03

4 (b) Five cucumbers cost £6.40 in total.

How much do **two** of these cucumbers cost?

[1 mark]

6.4 ÷ 5 = 1.28

1.28 x 2

Answer £ 2.56

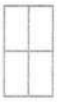
Turn over for the next question

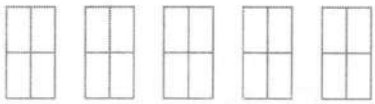
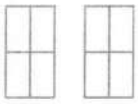
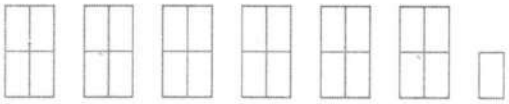
5

Do not write outside the box

5 A company sells three types of bottle.

The pictogram shows how many bottles they sold one week.

Key:  represents 20 bottles

Plastic	
Glass	
Steel	

100

40

125

5 (a) The company sold **more** plastic bottles than glass bottles that week.

How many more?

[2 marks]

100 - 40

Answer 60

5 (b) The company sells each **steel** bottle for £17.50

Work out the total amount of money made from selling **steel** bottles that week.

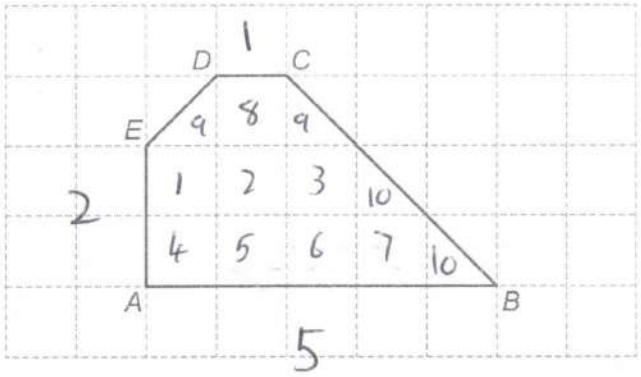
[3 marks]

125 x 17.5

Answer £ 2187.50

Do not write outside the box

6 Shape *ABCDE* is drawn on a centimetre grid.



6 (a) Complete this statement.

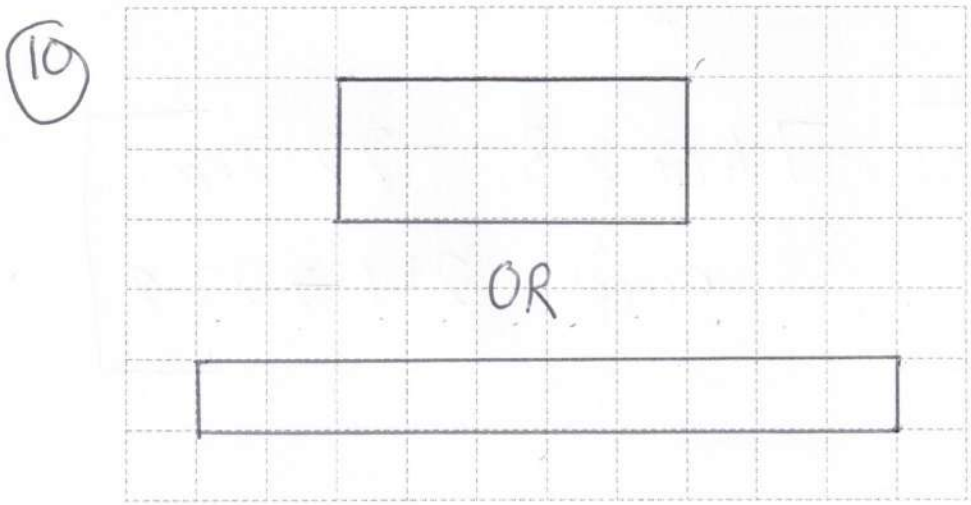
[1 mark]

AB : DC = 5 : 1

6 (b) On this centimetre grid,

draw a **rectangle** with the same area as shape *ABCDE*.

[2 marks]

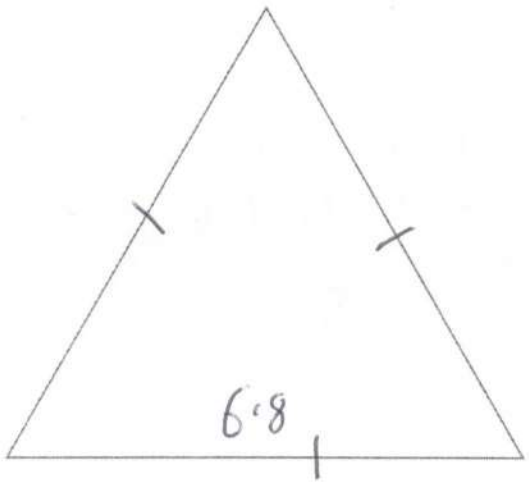


8

Do not write outside the box

7 Use a ruler for this question.

Here is an **accurate** drawing of an equilateral triangle.



By measuring, work out the perimeter of the triangle.

State the units of your answer.

[3 marks]

6·8 × 3

Answer 20·4

ms: 7·4cm × 3 = 22·2cm

accept 21·6 → 22·8

Do not write outside the box

8 There are 56 cubes in a box.

The cubes are green, red, blue or white.

17 cubes are green.

There are an **equal** number of red, blue and white cubes.

8 (a) How many red cubes are in the box?

[2 marks]

G R B W

17 x x x = 56, 3x = 39

Answer 13

8 (b) 24 **more** cubes are added to the box. ≈ 80

A cube is picked at random.

The probability that the cube is green is 0.4

How many of the 24 cubes added to the box are green?

[3 marks]

80 x 0.4 = 32

32 - 17

Answer 15

8

Do not write outside the box

9 An electric car uses 1 unit of electricity to travel 3 miles.

1 unit of electricity costs 50 pence.

Work out the cost of electricity, in pounds, to travel 270 miles.

[3 marks]

$270 \times 0.5 \div 3$

Answer £ 45

Do not write outside the box

10 (a) Leema buys 2 metres of linen at £8.50 per metre. = £17

She also buys 5 metres of cotton.

The **total** cost is £38

What is the cost of **one** metre of cotton?

[4 marks]

38 - 17 = £21

21 ÷ 5 = 4·2

Answer £ 4·20

10 (b) Buttons cost 65p each.

The greatest number of buttons Leema can buy with £5 is 7

She says,

"The greatest number of buttons I can buy with £10 is 14 because £10 is double £5"

Is she correct?

Tick a box.

Yes ☐ No ☑

Show working to support your answer.

[2 marks]

10 ÷ 0·65 = 15·3...

so she can buy 15 with £10

9

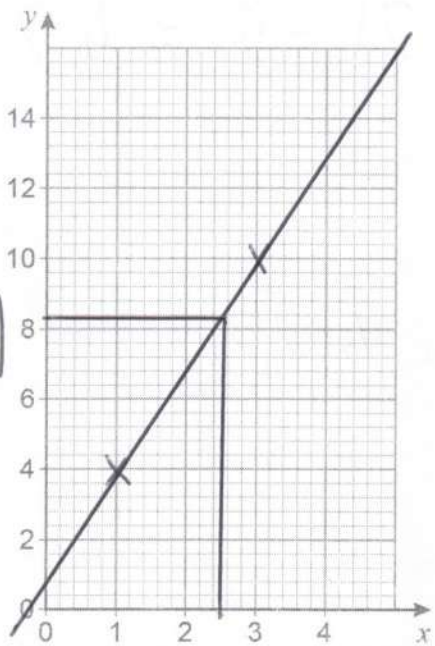
Do not write outside the box

11 Here is a table of values for the equation $y = 3x + 1$

x	1	2	3	4
y	4	7	10	13

11 (a) Draw the graph of $y = 3x + 1$ for values of x from 1 to 4

[2 marks]



[ms: 8.5 ± ½ sq]

11 (b) Work out the value of y when $x = 2.5$

[2 marks]

or $y = 3 \times 2.5 + 1$

$y =$ 8.5

Do not write outside the box

12 A code has five **different** digits written in order, starting with the smallest.

The last digit is the **only** square number.

The middle digit is the **only** even number.

Work out the code.

[3 marks]

Odd Odd Even Odd Odd

+square

cannot use "1"

Answer 3 5 6 7 9

13 Four numbers have a mean of 10 Total = 40

Three of the numbers are 5 + 8 + 9 = 22

Work out the other number.

[3 marks]

40 - 22

Answer 18

10

Do not write outside the box

14 (a) Rearrange $d = h - 4$ to make h the subject.

[1 mark]

+4 +4

$h =$ d + 4

14 (b) Rearrange $p = \frac{w}{3}$ to make w the subject.

[1 mark]

×3 ×3

$w =$ 3p

15 A linear sequence begins

+3 +3 +3

2 5 8 11

-1 (3 6 9 12) +1

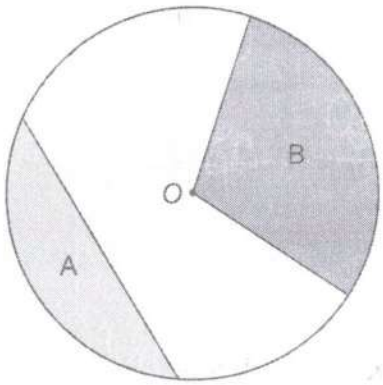
Work out an expression for the nth term.

[2 marks]

Answer 3n − 1

Do not write outside the box

16 The diagram shows a circle, centre O, and three straight lines.



Use **one** word to describe each shaded region.

Choose from

arc	chord	sector	segment	tangent

[2 marks]

Region A segment

Region B sector

17 Work out $\begin{pmatrix} 1 \\ 2 \end{pmatrix} + \begin{pmatrix} 4 \\ 6 \end{pmatrix}$

[1 mark]

Answer $\begin{pmatrix} 5 \\ 8 \end{pmatrix}$

7

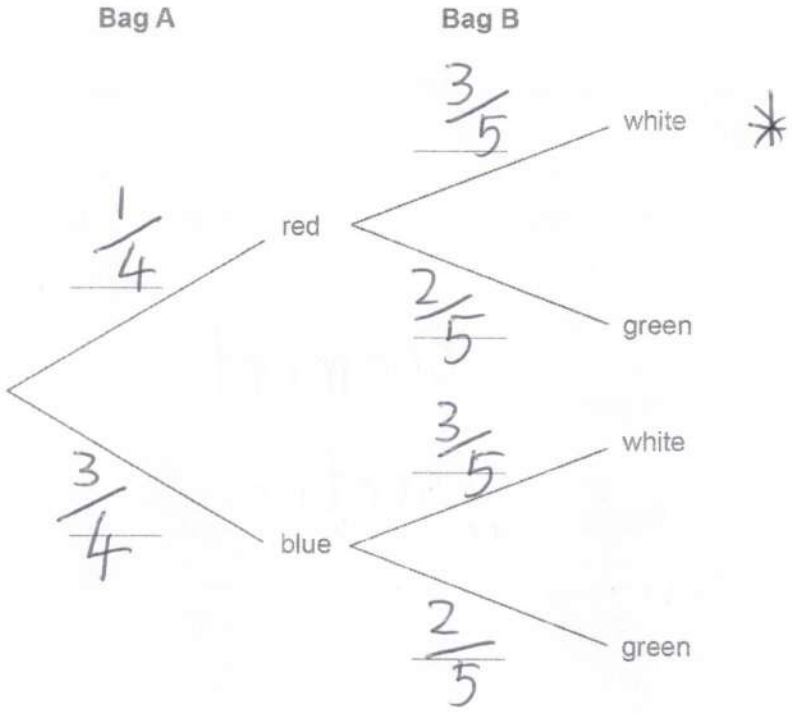
Do not write outside the box

18 Bag A and bag B contain counters.

Bag A	Bag B
$\frac{1}{4}$ are red	3 are white
The rest are blue	2 are green

18 (a) Complete the tree diagram.

[2 marks]



18 (b) One counter is taken at random from each bag.

Work out the probability that one is red and one is white.

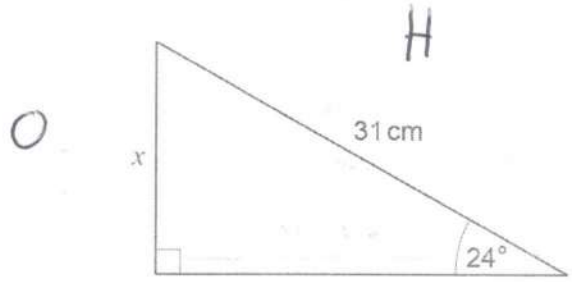
[2 marks]

$\frac{1}{4} \times \frac{3}{5}$

Answer $= \frac{3}{20}$

Do not write outside the box

19



Not drawn accurately

Use trigonometry to work out the value of x.

[3 marks]

SOH

$x = \sin 24 \times 31$

$= 12.6088...$

$x =$ 12.6 cm

20 The mass of an iceberg is 2 200 000 kg

This value is a 12% reduction from the **original** mass of the iceberg.

Work out the **original** mass of the iceberg.

Give your answer in standard form.

[3 marks]

$2200000 \div 0.88$

$= 2,500,000$

Answer 2.5×10^6 kg

10

Do not write outside the box

21 A chef has a tub of blueberries.

She wants to

use all the blueberries

put the same number of blueberries on each dessert.

$$D = \frac{k}{b}$$

D is the number of desserts.

b is the number of blueberries on each dessert.

21 (a) What does the constant k represent?

Tick the correct box.

[1 mark]

- [✓] The number of blueberries in the tub
- [ ] The number of desserts
- [ ] The number of blueberries on each dessert
- [ ] None of the above

21 (b) Complete the table.

[2 marks]

b	2	6	8
D	120	40	30

240 240 240

Do not write outside the box

22 (a) A fair spinner has six equal sections, each with the number 5, 6, 7 or 8

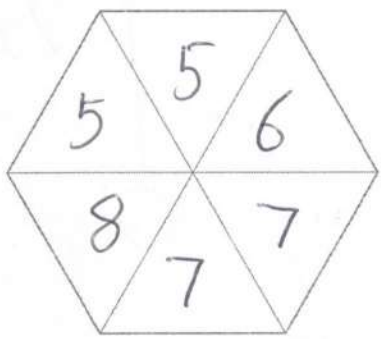
Each number appears at least once.

P(even number) = P(7)

Work out P(5)

You may use the blank spinner to help you.

[3 marks]



Answer $\frac{2}{6}$

22 (b) A different spinner has ten sections, each labelled A, B, C or D.

	A	B	C	D
Probability	0.1	0.5	0.2	0.3

Give **one** reason why there **must** be a mistake in the table.

[1 mark]

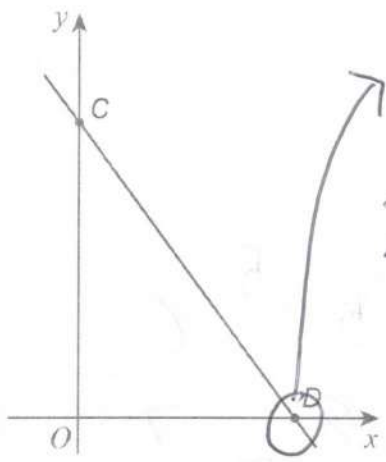
Total should = 1, not 1.1

7

Turn over ▶

Do not write outside the box

23 (a) Here is a sketch of the graph $y = -2x + 6$



$y = 0$

$0 = -2x + 6$

$2x = 6$

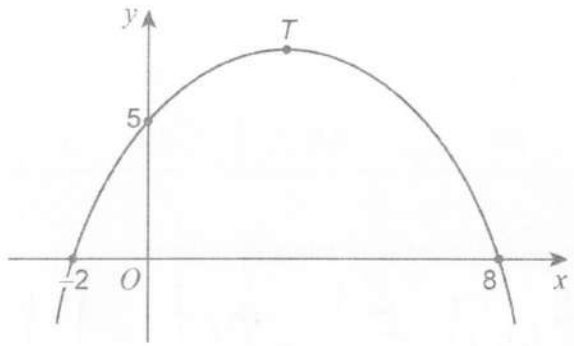
$x = 3$

Complete the coordinates of C and D.

[2 marks]

$C(\ 0\ ,\ 6\ )$ $D(\ 3\ ,\ 0\ )$

23 (b) Here is a sketch of a quadratic graph.



Complete the following statements.

[2 marks]

$\frac{-2+8}{2} = 3$

The value of the y-**intercept** is 5

The x-**coordinate** of the turning point, T, is 3

Do not write outside the box

24 Archie flips a biased coin 200 times.

Here is some information about the outcomes after each 50 flips.

Total number of flips	50	100	150	200
Number of heads	10	27	37	52

Work out the best estimate for the probability of flipping a head.

Give a reason for your answer.

[2 marks]

Answer 52/200

Reason Has the most trials so is the most reliable

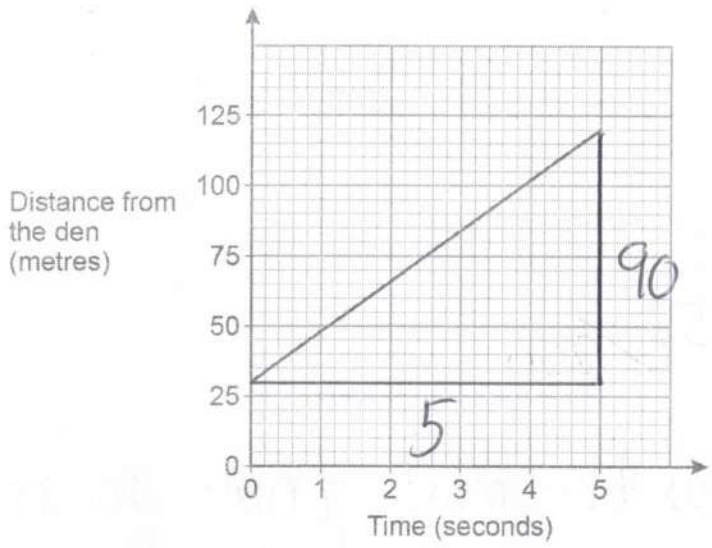
Turn over for the next question

6

Do not write outside the box

25 A lion is sprinting in a straight line away from its den.

The graph shows the lion's distance from the den.



Work out the speed of the lion in metres per second.

[3 marks]

$S = \frac{D}{T}$ $\quad S = \frac{90}{5}$

Answer 18 m/s

END OF QUESTIONS

3