

Name: *Solutions*

GCSE 9-1 Foundation
Practice Paper
Set A
Paper 3 - Calculator



Corbettmaths

Equipment

1. A black ink ball-point pen.
2. A pencil.
3. An eraser.
4. A ruler.
5. A pair of compasses.
6. A protractor.
7. A calculator

Guidance

1. Read each question carefully.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Information

1. Time: 1 hour 30 minutes
2. The maximum mark for this paper is 80.
3. You may use tracing paper.

Question	Mark	Available
1		1
2		1
3		2
4		4
5		2
6		4
7		4
8		2
9		2
10		3
11		4
12		2
13		5
14		2
15		4
16		3
17		3
18		3
19		3
20		4
21		3
22		3
23		3
24		4
25		2
26		3
27		4
Total		80

1. Write 2847 correct to the nearest 100

2800

(1)

2. Simplify $5w - 6w + 3w$

$2w$

(1)

3. List all the factors of 24

1, 2, 3, 4, 6, 8, 12, 24

(2)

4. Here is part of a bus timetable.

Ballymena	15 12	16 12	<u>17 12</u>
Antrim	15 34	-----	17 34
Templepatrick	15 50	-----	<u>17 50</u>
Belfast	16 10	17 00	18 10

A bus leaves Ballymena at 17:12.

(a) What time should the bus arrive at Templepatrick?

$$\begin{array}{r} 1750 \\ \hline \end{array} \quad (1)$$

(b) How long will the journey take?

$$50 - 12 = \begin{array}{r} 38 \text{ mins} \\ \hline \end{array} \quad (1)$$

Evelyn wants to travel from Ballymena to Belfast.
The 16:12 in an "express bus."

(c) How many minutes shorter is the journey if she takes the "express bus?"

$$\begin{array}{l} 1612 \rightarrow 1700 = 48 \text{ mins} \\ 1512 \rightarrow 1610 \rightarrow 58 \text{ mins} \\ \hline 10 \text{ mins} \end{array} \quad (2)$$

5. There are 14 children at a birthday party.
There are 8 litres of lemonade at the beginning of the party.
Each child drank 280 millilitres of lemonade.

How much lemonade is left?

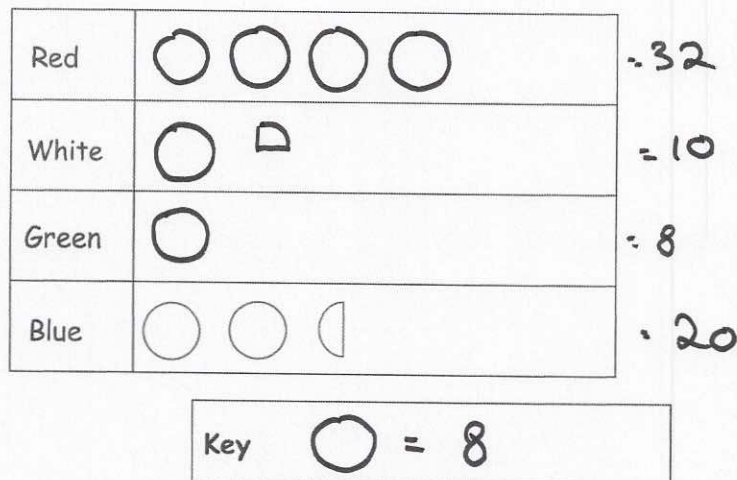
$$14 \times 280 = 3920 \text{ mL}$$

$$= 3.92 \text{ Litres}$$

$$8 - 3.92 = 4.08 \text{ L} =$$

.....4080.....ml
(2)

6. The pictogram shows information about the colours of 70 sweets in a jar.



There are 20 blue sweets in the jar.

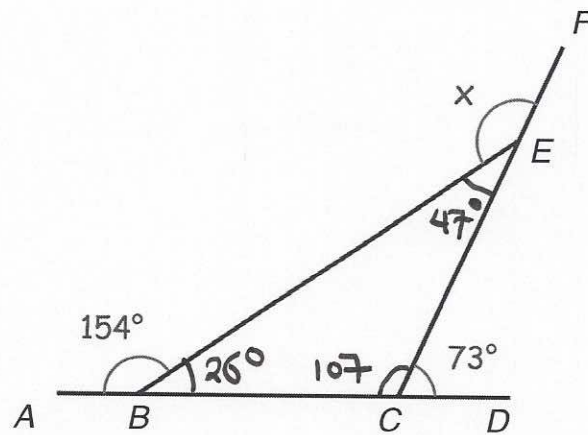
There are 32 red sweets.

There are twice as many blue sweets than white sweets.

Use this information to complete the pictogram.

(4)

7.



ABCD is a straight line.
CEF is a straight line.

Find the size of angle BEF
Give a reason for each stage of your working.

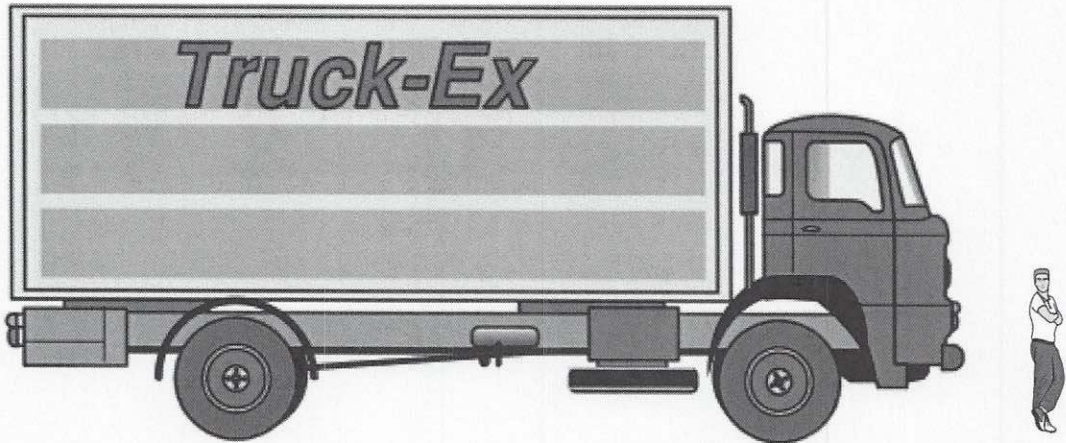
$$\begin{aligned} \hat{CBE} &= 180 - 154 = 26^\circ \\ \hat{BCE} &= 180 - 73 = 107^\circ \end{aligned} \quad \left. \begin{array}{l} \\ \end{array} \right\} \begin{array}{l} \text{(angles on a line add} \\ \text{up to } 180^\circ) \end{array}$$

$$\hat{CEB} = 180 - (26 + 107) = 47^\circ \quad \begin{array}{l} \text{(angles in a triangle} \\ \text{add up to } 180^\circ) \end{array}$$

$$x = 180 - 47 = 133^\circ \quad \text{(angles on a line add up to } 180^\circ)$$

(4)

8.



The diagram shows a man and his lorry.
The man has a height of 2m

Work out an estimate for the length of the lorry, in metres.

approx 12 m
(2)

9. 100 can be found by adding together a square number and a cube number.

$$\boxed{36} + \boxed{64} = 100$$

square number cube number

Fill in the missing numbers

(2)

-
10. Kyle had some money.

He spent £12 on a ticket to a football match.

He spent £9.90 on a scarf.

Kyle has two-fifths of his money left.

Work out how much money Kyle had to start with.

$$12 + 9.90 = 21.90 \rightarrow \text{which is } \frac{3}{5} \text{ of what he had to start with}$$

$$21.90 \div \frac{3}{5} = 36.5$$

£ 36.50
.....
(3)

11. When a tennis ball is dropped, it bounces and then rises. The ball rises to 80% of the height from which it is dropped. The ball is dropped from a height of 4 metres.

(a) Calculate the height of the rise after the first bounce.

$$80\% \text{ of } 4 =$$

$$\begin{array}{r} 3.2 \\ \hline \end{array} \text{m} \\ (1)$$

(b) Calculate the height of the rise after the second bounce.

$$80\% \text{ of } 3.2 =$$

$$\begin{array}{r} 2.56 \\ \hline \end{array} \text{m} \\ (1)$$

The ball carries on bouncing, each time rising to 80% of the last rise.

(c) For how many bounces does the ball rise to a height greater than 2m?

$$\begin{array}{l} 3^{\text{rd}} \text{ bounce } 80\% \text{ of } 2.56 = 2.048 \text{ m} \\ 4^{\text{th}} \text{ bounce } 80\% \text{ of } 2.048 = 1.6384 \text{ m} \end{array}$$

$$\begin{array}{r} 3 \\ \hline \end{array} \\ (2)$$

-
12. Ella takes part in an archery lesson

For every 4 arrows fired, only 3 hit the target.
Altogether Ella hit the target 24 times.

Work out how many arrows Ella fired.

$$24 \div 3 \times 4 =$$

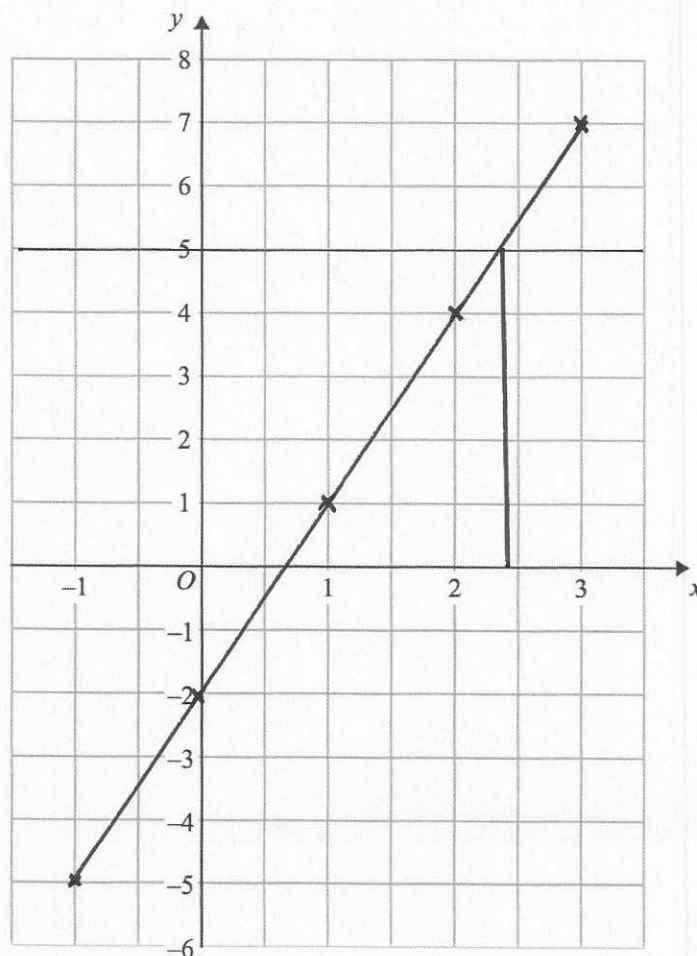
$$\begin{array}{r} 32 \\ \hline \end{array} \\ (2)$$

13. (a) Complete the table of values for $y = 3x - 2$

x	-1	0	1	2	3
y	-5	-2	1	4	7

(2)

(b) On the grid, draw the graph of $y = 3x - 2$ for the values of x from -1 to 3



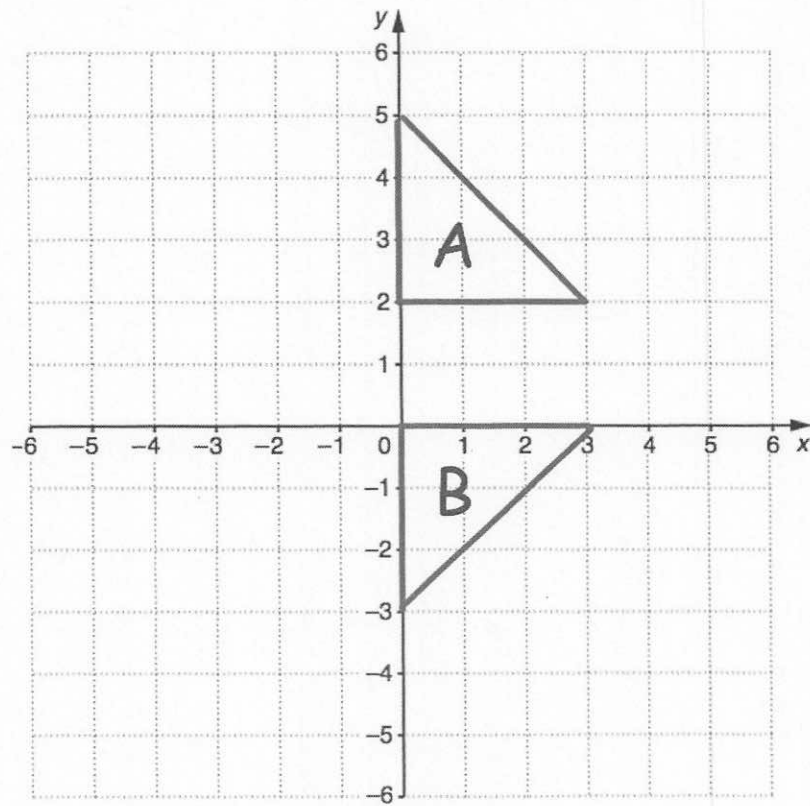
(2)

(c) Use your graph to estimate the value of x when $y = 5$

$$x = 2.4 \dots \dots \dots$$

(1)

14.



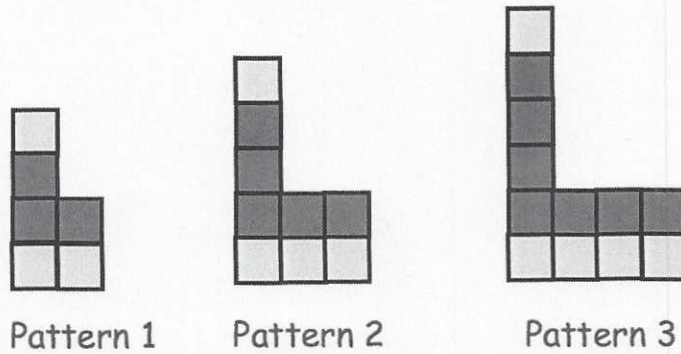
Describe fully the single transformation that maps shape **A** onto shape **B**

..... reflection in the line $y = 1$

.....

(2)

15. Here is a pattern of red and yellow squares.



(a) Here is a method for working out the number of red squares in each pattern.

Complete the method for Pattern 20.

Pattern 1	$3 + 2 \times 0 = 3$
Pattern 2	$3 + 2 \times 1 = 5$
Pattern 3	$3 + 2 \times 2 = 7$
Pattern 4	$3 + 2 \times 3 = 9$
⋮	
Pattern 20	$3 + 2 \times 19 = 41$

(2)

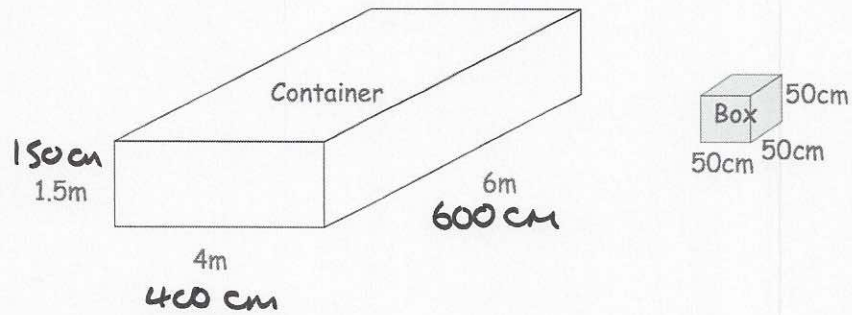
(b) Which statements below are true?

- A Pattern 10 has 11 yellow squares ✗
- B The number of red squares is always odd ✓
- C Every pattern has more red squares than yellow squares ✗
- D Pattern 5 has 11 red squares ✓

B, D

(2)

16. The cuboid container below is used to store boxes.



Each box is a cube with side length 50cm.

Work out how many boxes can be stored in the container.

$$600 \div 50 = 12$$

$$400 \div 50 = 8$$

$$150 \div 50 = 3$$

$$12 \times 3 \times 8 =$$

288

(3)

17. (a) Factorise $21 - 7a$

$$7(3 - a)$$

(1)

(b) Factorise fully $6x^2 + 9x$

$$3x(2x + 3)$$

(2)

18. The first 5 terms in a number sequence are

$$10 \quad 7 \quad 4 \quad 1 \quad -2 \quad \dots \quad \dots$$

-3 -3 -3

(a) Work out the n th term of the sequence.

$$-3n + 13$$

.....
(2)

(b) Find the 50th term of the sequence.

$$-3 \times 50 + 13 =$$

-137
.....
(1)

19. A cereal bar is sold in packs of 4, 6 or 8.

The 4 pack of cereal bars costs £1.80 and it is the least value for money.

The 8 pack of cereal bars cost £3.52 and it is the best value for money.

Work out the lowest possible price and the highest possible price for the 6 pack of cereal bars.

$$1.80 \div 4 = 0.45 \text{ per bar}$$

$$3.52 \div 8 = 0.44 \text{ per bar}$$

∴ the 6 pack costs between 44p & 45p per bar

$$0.44 \times 6 = \pounds 2.64$$

$$0.45 \times 6 = \pounds 2.70$$

Lowest £.....2.64..... Highest £.....2.70.....

(3)

20. The table shows information about the mass of 70 puppies

Mass, kg	Frequency
$0 < m \leq 1$	7
$1 < m \leq 2$	13
$2 < m \leq 3$	15
$3 < m \leq 4$	6
$4 < m \leq 5$	17
$5 < m \leq 6$	12

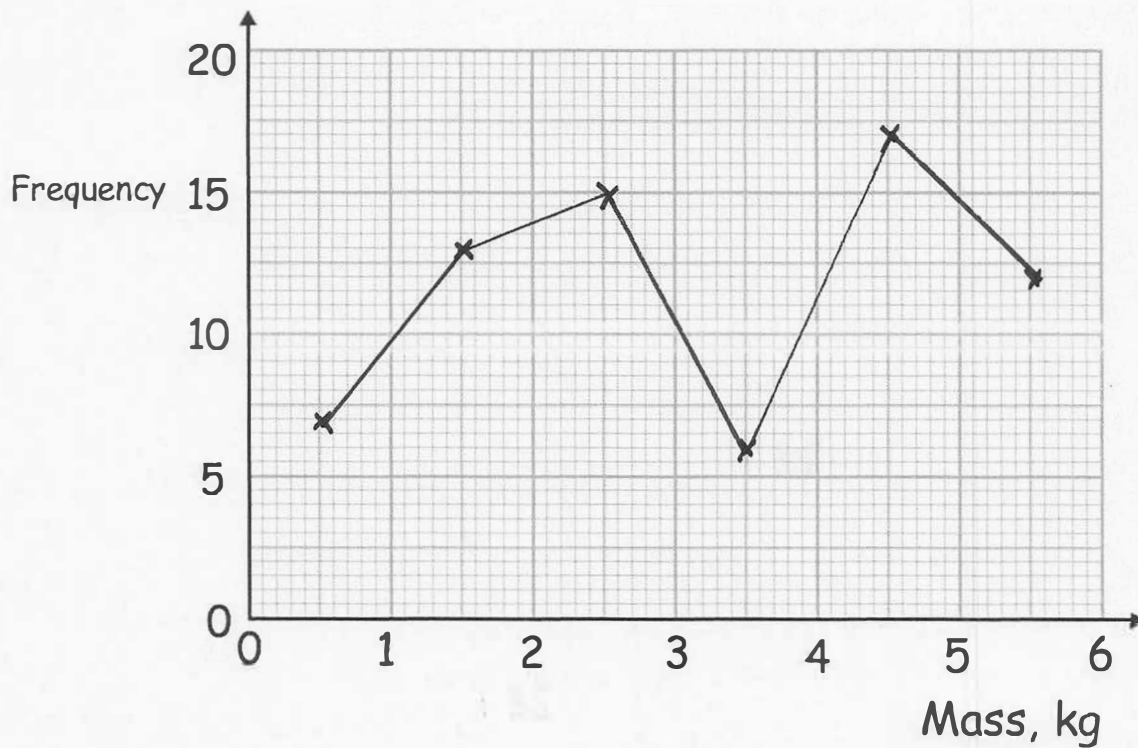
(a) Find the modal class interval.

$$\underline{4 < m \leq 5} \quad (1)$$

(b) What fraction of the puppies have a mass greater than 4kg?

$$\underline{\frac{29}{70}} \quad (1)$$

(c) Draw a frequency polygon for the information in the table



21. A glass cube of side length 5cm has a mass of 306.25g.
Calculate the density of the glass.

$$\text{Volume} = 5^3 = 125\text{cm}^3$$

$$\text{density} = \frac{\text{Mass}}{\text{Volume}} = \frac{306.25}{125} =$$

$$\dots\dots\dots 2.45 \dots\dots \text{g/cm}^3$$

(3)

-
22. A bag contains red, yellow and blue beads.

The ratio of red beads to yellow beads is 2:3
The ratio of yellow beads to blue beads is 5:4

Work out what fraction of the beads are red.

$$\begin{aligned} R:Y &= 2:3 \\ &= 10:15 \end{aligned}$$

$$\begin{aligned} Y:B &= 5:4 \\ &= 15:12 \end{aligned}$$

$$\therefore R:Y:B = 10:15:12$$

$$\therefore \text{red are } \frac{10}{10+15+12} = \frac{10}{37}$$

\dots\dots\dots
(3)

23. (a) Find the reciprocal of 0.32

$$\frac{1}{0.32} =$$

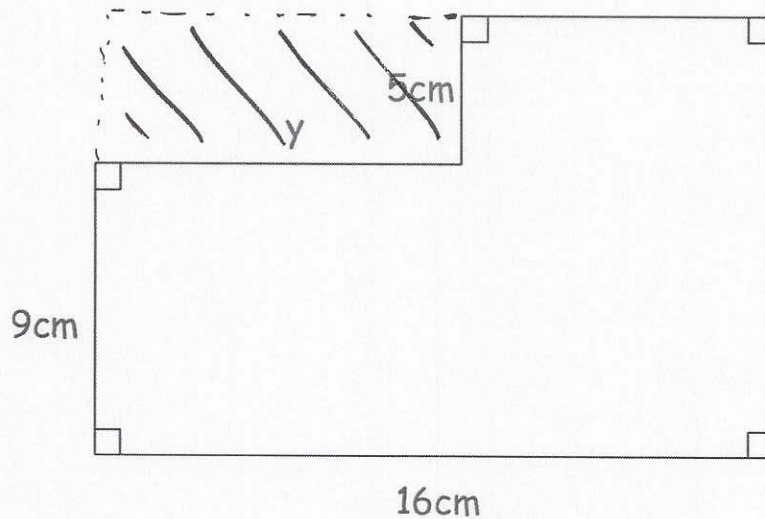
$$\underline{\underline{3.125}} \quad (1)$$

Martin rounds a number, y , to one decimal place.
His answer is 8.2

- (b) Write down the error interval for y

$$\underline{\underline{8.15 < y < 8.25}} \quad (2)$$

24.



The total area is 176cm^2

Find the value of y

$$\text{Total area} = 16 \times 14 = 224\text{cm}^2$$

$$\text{Shaded corner} = 5y$$

$$\therefore 224 - 5y = 176$$

$$5y = 48$$

$$y = \frac{48}{5} =$$

$$\underline{\underline{9.6}} \text{ cm} \quad (4)$$

25. Work out $(1.9 \times 10^4) \div (5 \times 10^{-5})$

Give your answer as an ordinary number.

380,000,000

(2)

26. Solve the simultaneous equations

$$\begin{array}{rcl} 2x + 2y = 14 & \rightarrow \times 3 & 6x + 6y = 42 \\ 5x - 3y = 19 & \rightarrow \times 2 & 10x - 6y = 38 \quad + \end{array}$$

$$16x = 80$$

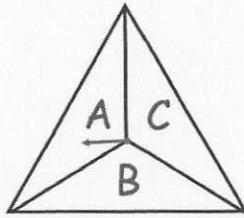
$$x = 5$$

$$10 + 2y = 14$$

$$x = 5 \quad y = 2$$

(3)

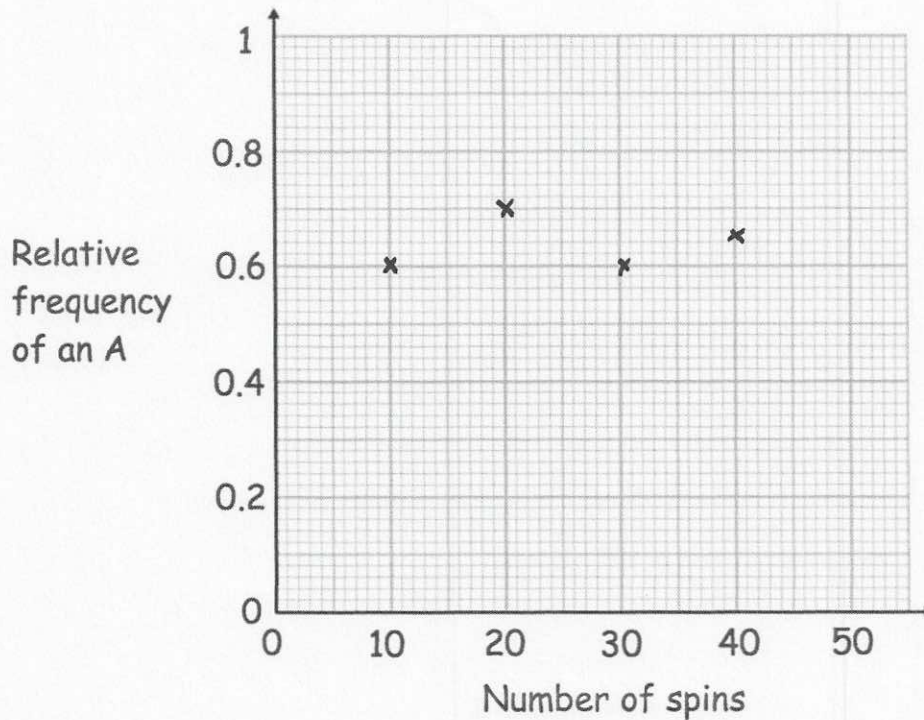
27. A three sided spinner is labelled A, B and C.



The spinner is spun and the frequency of the letter A is recorded every 10 spins. The table below shows this information.

Spins	10	20	30	40
Frequency of an A	6	14	18	26
	0.6	0.7	0.6	0.65

(a) Plot the relative frequencies on the graph below.



(2)

Jacob says the relative frequency after 50 spins is 0.8.

(b) Explain why Jacob must be wrong.

So $0.8 = 40$, but the most number of A's he could have is $26 + 10 = 36$

(2)