## Collins

## AQA

GCSE

## Mathematics

## SET A - Paper 2 Foundation Tier

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## Materials

## For this paper you must have:

- calculator
- mathematical instruments


## 0 0000 0000 0000

## Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer all questions.
- You must answer the questions in the space provided.
- In all calculations, show clearly how you work out your answer.


## Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80 .
- You may use additional paper, graph paper and tracing paper.

Name:

Answer all questions in the spaces provided.
1 Round 2.359 to 1 decimal place.
Circle your answer.
2
2.3
2.36
2.4
2.35

2 (a) Convert 2.34 kg into grams.
Circle your answer.
$0.234 \mathrm{~g} \quad 23.4 \mathrm{~g} \quad 234 \mathrm{~g} \quad 2340 \mathrm{~g}$
0.234 g
23.4 g

234 g
2340 g

2 (b) Convert 6.4 m into cm .
Circle your answer.

3 (a) Simplify $3 x+4 y-x-6 y$
Circle your answer.

3 (b) Find the area of the rectangle.


Circle your answer.
$6 a+8$
$3 a+4$
$12 a$
$7 a$
$14 a$

4 All of the interior angles of this shape are equal.


Give the mathematical name of the shape.

Answer

5 In total, Tim's chickens laid 27 eggs this week.
The pictogram shows the number of eggs Tim collected from Monday to Friday.


Key: $\bigcirc=2$ eggs
Tim collected the same number of eggs on Saturday and Sunday.
How many did he collect on Sunday?

6 Find the coordinates of the midpoint of the line $A B$.


Answer ( , )

7 (a) Yusuf earns $£ 36$ per week.
One week he spends $\frac{3}{5}$ of his wage and saves the rest.
How much money does he save?
[2 marks]

Answer f

7 (b) Another week he saves $£ 16$ from his wage.
What percentage of his money did he spend that week?
Answer ..... \%

8 Calculate $\frac{(2.3+4.9)^{2}}{2+\sqrt{8}}$
Write down all the figures on your calculator display.

Answer

9 (a) Doug is going to measure the height of some students in order to analyse any differences between boys and girls.

Which of the following statements best describe Doug's data?
Tick two boxes.

Primary


Secondary


Discrete


Continuous


Controversial


9 (b) Doug is going to select the students from his class at random.
Describe how he could do this.
(a) Ikra writes down ' $2+3 \times 4-8$ '

She says, 'the answer equals 12 '.
Is Ikra correct?
Show your working.
(b) Hannah says, 'I can make the answer equal -10 , just by including brackets'.

Show that Hannah is correct.

11 Given that $2250=2 \times 3^{a} \times 5^{b}$
Find the values of $a$ and $b$.
$a=$
$b=$

12 A film is 137 minutes long.
It starts at 7:14 pm
What time does it end?
Circle your answer.
8:91 pm
9:29 pm
9:31 pm
8:51 pm

1350 vegetarians were asked if they eat eggs or dairy products.


13 (a) Given that 21 said that they eat eggs, complete the Venn diagram.

13 (b) Find the probability that a vegetarian chosen at random eats neither eggs nor dairy.

14 Put the following in order from smallest to largest.
$\frac{3}{7}$
0.41
$38.5 \%$
$\frac{1}{2}$ of $\frac{4}{5}$

Answer

15 Sean, Nicole and Jadyn are taking part in a long jump competition.
Jadyn can jump $\frac{3}{5}$ of the distance that Sean can jump.
Nicole can jump twice as far as Jadyn.
Write the distances that Jadyn, Sean and Nicole can jump as a ratio in its simplest form.

16 In the diagram, the numbers opposite each other are factor pairs of the number in the centre.


Put numbers in the diagram below, so that it follows the same rules.
You must not repeat any factor pairs.


17 Convert $2 \mathrm{~m}^{2}$ into $\mathrm{cm}^{2}$.

18 (a) Factorise $4 x^{2}-12 x$

Answer

18 (b) Find the largest integer for $x$, that satisfies $4 x^{2}-12 x<32 x$


Not drawn accurately

19 (a) Given that $x=9$, find the size of angle $y$.

$$
y=
$$

(b) What is size of angle $z$ ?

Give a reason for your answer.
[2 marks]
$z=$
。

20 A helicopter flies from a south-westerly direction so that it is an equal distance between the lighthouse and the cliffs.

When it is exactly 500 m from the yacht, it stops in a fixed position to rescue a seaman from the water.


Mark, with a cross, the exact position of the helicopter once it has stopped.

21 The bookcase exerts a downward force of 3000 N .


Use the formula to find the pressure applied to the base of the bookcase.
$\qquad$
$\qquad$
$\qquad$
$\mathrm{N} / \mathrm{m}^{2}$

22 Pete's company produces metal fencing.
Different numbers of workers are available each day, but the company always runs an 8-hour shift.

The table shows the number of workers and length of fencing produced each day.

|  | Mon | Tue | Wed | Thu |
| :--- | :---: | :---: | :---: | :---: |
| Number of <br> workers | 3 | 5 | 8 | 5 |
| Length of fence <br> produced | 645 cm | 10.75 m | 17.2 m | 10.75 m |

On Friday, Pete has 7 workers.
How many metres of metal fencing will the company produce on Friday?

23 Work out the area of the semicircle.

Circle your answer.

$4 \pi$
$8 \pi$
$16 \pi$
$32 \pi$
$64 \pi$

24 Louise and Anita work in a café.
Louise takes 42 seconds to make a latte.

Anita takes 70 seconds to toast a teacake.
Louise says, 'I can make $x$ lattes in the time it takes you to make $y$ teacakes'.
Find the values of $x$ and $y$.

$$
\begin{aligned}
& x= \\
& y=
\end{aligned}
$$

25 Translate shape $A$ with the vector $\binom{-2}{-4}$ and label the new shape $B$.


26 Cathy wants to build a new driveway and have a loft conversion on her house.
She is told that:
A new driveway will add $6 \%$ on to the value of her house
A loft conversion will add a further $18 \%$ on to the value of her house
Cathy says, 'My house will be worth $£ 180000$ if I have all of the work done'.
What is the current value of her house?
Give your answer to 3 significant figures.
$\qquad$
$\qquad$

Answer f

27 There are 20 students in Anand's class.
He copies down this table from the board to show the heights of everyone in the class, but he has made one error in the frequency column.

| Height, $h(\mathrm{~cm})$ | Frequency |
| :---: | :---: |
| $140<h \leqslant 150$ | 3 |
| $150<h \leqslant 160$ | 6 |
| $160<h \leqslant 170$ | 6 |
| $170<h \leqslant 180$ | 4 |

The teacher says, 'An estimate for the mean height is 161 cm '.
Which class interval has an incorrect frequency?
You must show working to back up your answer.

28 (a) By plotting the graph of $3 y=5 x+3$, solve the simultaneous equations

$$
3 y=5 x+3
$$

$$
x+y=5
$$



$$
x=
$$

$$
y=
$$

28 (b) Find the equation of the line which is parallel to $x+y=5$ and goes through the point (3,4).

29 The graph shows the height of water in a container which is left out overnight in the rain.


29 (a) At what time was the rainfall the heaviest?

Answer

29 (b) Estimate the rate of rainfall at 10:30 pm.

