

Q1. (2017)

4 $a : b = 4 : 3$

Circle the correct statement.

[1 mark]

$$b \text{ is } \frac{4}{7} \text{ of } a \quad b \text{ is } \frac{3}{7} \text{ of } a \quad b \text{ is } \frac{4}{3} \text{ of } a \quad b \text{ is } \frac{3}{4} \text{ of } a$$

Q2. (2017)

25 In an office there are twice as many females as males.

 $\frac{1}{4}$ of the females wear glasses. $\frac{3}{8}$ of the males wear glasses.

84 people in the office wear glasses.

Work out the number of people in the office.

[4 marks]

Q3. (2018)

14 Patterns are made using straight lines and arcs.

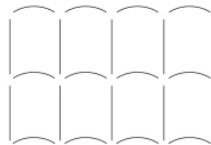
(A)

14 (a)

Pattern A (one row)



Pattern B (two rows)

More rows are added to **Pattern B** so that

$$\text{number of straight lines} : \text{number of arcs} = 10 : 9$$

How many rows are added?

[2 marks]

(B)

14 (b) A different pattern is made using 20 straight lines and 16 arcs.

The straight lines and arcs are made from metal.

20 straight lines cost £12

$$\text{cost of one straight line} : \text{cost of one arc} = 2 : 3$$

Work out the **total** cost of the metal in the pattern.

[3 marks]

Answer £ _____

Q4. (2018)

16 The value of y is 20% more than the value of x .Circle the ratio $x : y$

[1 mark]

$$5 : 6 \quad 6 : 5 \quad 4 : 5 \quad 5 : 4$$

Q5. (2018)

- 26 b is two thirds of c .
 $5a = 4c$

Work out the ratio $a : b : c$

Give your answer in its simplest form where a , b and c are integers.

[3 marks]

Answer _____ : _____ : _____

Q6. (2019)

- 11 Ed and Fay shared £330 in the ratio 7 : 4
 Ed gives Fay some of his money.
 Fay now has the same amount as Ed.

How much does Ed give Fay?

[3 marks]

Answer £ _____

Q7. (2020)

- 15 $3x = \frac{1}{2}y$

Circle the ratio $x : y$

[1 mark]

6 : 1 1 : 6 3 : 2 2 : 3

Q8. (2021)

- 6 Lily's age is 2 years and 4 months.
 Hugo's age is 1 year and 8 months.

Write Lily's age in months as a fraction of Hugo's age in months.

Give your fraction in its simplest form.

[2 marks]

Q9. (2021)

26

$$d = 2f$$

$$\frac{e-f}{d-e} = \frac{1}{4}$$

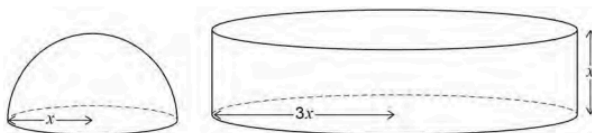
Work out the ratio $e : f$

[3 marks]

Answer _____ : _____

Q10. (2023)

17

A solid hemisphere has radius x .A solid cylinder has radius $3x$ and height x .

Surface area of a sphere = $4\pi r^2$
where r is the radius

Work out the ratio

total surface area of the hemisphere : total surface area of the cylinder

Give your answer in its simplest form.

You **must** show your working.

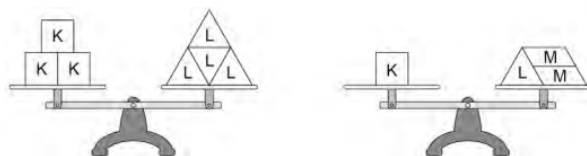
[3 marks]

Q11. (2023)

20

K, L and M are weights.

Both of the scales balance exactly.

How many M weights are needed to balance **one** L weight?

[3 marks]

Q12. (2024)

19

 A , B and C are numbers.Here is some information about B and C .

B	$\frac{7}{4}$ of A
C	A increased by 150%

Work out C as a fraction of B .**[4 marks]**