

Ratio and Algebra

For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **26**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

- 1** $y:x = 3:2$
Circle the equation linking x and y .

[1 mark]

$y = \frac{2}{3}x$

$y = \frac{3}{2}x$

$2y = 3x + 1$

$3y = 2x$

- 2** $\frac{x}{4} = \frac{y}{6}$
Circle the ratio $y:x$

[1 mark]

$2:3$

$3:2$

$24:1$

$1:24$

- 3** $p:q = 3:8$ and $2p + q = 42$
Work out $q - p$.

[2 marks]

Answer _____

- 4** $x:y = 2:5$
Show that $(x + y):(y - x) = 7:3$

[2 marks]

- 5** $(x + 3):(2x - 1) = 4:5$
Work out the value of x .

[3 marks]

Answer $x =$ _____

- 6** $3a = 2b$
 $b + c = 2a$
Work out the ratio $a:b:c$
Give your answer in its simplest form.

[3 marks]

Answer _____ : _____ : _____

- 7 $\frac{2m + n}{m + 3n} = \frac{5}{4}$
Work out the ratio $m:n$

[3 marks]

Answer _____ :

- 8 In a bag, the ratio of red to blue counters is 2:3
10 red counters are added.
The ratio is now 4:3
How many blue counters are in the bag?

[3 marks]

Answer _____

- 9 The ages of Tom and his dad are in the ratio 1:4
In 9 years' time the ratio will be 2:5
How old is Tom now?

[4 marks]

Answer _____ years

- 10** Triangle T has base 32 cm and perpendicular height h cm.
Parallelogram R has base 18 cm and perpendicular height k cm.
The area of R is 20% more than the area of T .
Work out the ratio $h:k$
Give your answer in its simplest form.

[4 marks]

Answer _____ :