



ACHIEVE ACADEMY

GCSE Maths — Higher Tier

Ratio · Practice Booklet

NAME: _____

CLASS: _____

DATE: _____

☐ Developing

☐ Secure

☐ Greater Depth

Answer every question in the working space provided. Method marks are available for correct working even if the final answer is wrong. Check the time allowed with your tutor before you start.

Ratio

Total marks available: 112

● Ratio

✓ 3/5

Q1 · ● Developing · 3 marks

METHOD

Total parts = 5

Fraction that is a = $\frac{3}{5}$

✓ 2/11

Q2 · ● Developing · 3 marks

METHOD

Total parts = 11

Fraction that is a = $\frac{2}{11}$

✓ 4/7

Q3 · ● Developing · 3 marks

METHOD

Total parts = 7

Fraction that is a = $\frac{4}{7}$

✓ 4/9

Q4 · ● Developing · 3 marks

METHOD

Total parts = 9

Fraction that is a = $\frac{4}{9}$

✓ 13

Q5 · ● Developing · 4 marks

METHOD

$$5(t + 17) = 3(t + 37)$$

$$5t + 85 = 3t + 111$$

$$2t = 26$$

$$t = 13$$

✓ 2/9

Q6 · ● Developing · 3 marks

METHOD

Total parts = 9

Fraction that is a = $\frac{2}{9}$

✓ 6/11

Q7 · ● Developing · 3 marks

METHOD

Total parts = 11

Fraction that is a = $\frac{6}{11}$

✓ 15

Q8 · ● Developing · 4 marks

METHOD

$$3(t + 29) = 4(t + 18)$$

$$3t + 87 = 4t + 72$$

$$-t = -15$$

$$t = 15$$

✓ 8

Q9 · ● Developing · 4 marks

METHOD

$$6(n + 24) = 4(n + 40)$$

$$6n + 144 = 4n + 160$$

$$2n = 16$$

$$n = 8$$

✓ 10

Q10 · ● Developing · 4 marks

METHOD

$$2(n + 30) = 5(n + 6)$$

$$2n + 60 = 5n + 30$$

$$-3n = -30$$

$$n = 10$$

✓56%

Q11 · ● Secure · 3 marks

METHOD

Total parts = 25

Each part = 4% of the total

Larger share = 14 parts = 56%

✓72%

Q12 · ● Secure · 3 marks

METHOD

Total parts = 25

Each part = 4% of the total

Larger share = 18 parts = 72%

✓40

Q13 · ● Secure · 4 marks

METHOD

Original: red = 12, blue = 28

After adding 12 blue: blue = 40

New ratio red:blue = 12:40 = 3:10 ✓

Original total = 12 + 28 = 40

✓40

Q14 · ● Secure · 4 marks

METHOD

Original: red = 16, blue = 24

After adding 4 blue: blue = 28

New ratio red:blue = 16:28 = 4:7 ✓

Original total = 16 + 24 = 40

✓70

Q15 · ● Secure · 4 marks

METHOD

original: red = 21, blue = 49

After adding 4 blue: blue = 53

New ratio red:blue = 21:53 ✓

original total = 21 + 49 = 70

✓33

Q16 · ● Secure · 4 marks

METHOD

original: red = 12, blue = 21

After adding 6 blue: blue = 27

New ratio red:blue = 12:27 = 4:9 ✓

original total = 12 + 21 = 33

✓80

Q17 · ● Secure · 4 marks

METHOD

original: red = 24, blue = 56

After adding 4 blue: blue = 60

New ratio red:blue = 24:60 = 2:5 ✓

original total = 24 + 56 = 80

✓22

Q18 · ● Secure · 4 marks

METHOD

original: red = 8, blue = 14

After adding 20 blue: blue = 34

New ratio red:blue = 8:34 = 4:17 ✓

original total = 8 + 14 = 22

✓20

Q19 · ● Secure · 4 marks

METHOD

Original: red = 8, blue = 12

After adding 20 blue: blue = 32

New ratio red:blue = $8:32 = 1:4$ ✓

Original total = $8 + 12 = 20$

✓27

Q20 · ● Secure · 4 marks

METHOD

Original: red = 12, blue = 15

After adding 16 blue: blue = 31

New ratio red:blue = $12:31$ ✓

Original total = $12 + 15 = 27$

✓22 and 33

Q21 · ● Greater Depth · 4 marks

METHOD

Difference in parts = $3 - 2 = 1$

$11 \div 1 = 11$

Numbers = $2 \times 11 = 22$ and $3 \times 11 = 33$

✓10

Q22 · ● Greater Depth · 4 marks

METHOD

$a + c = 5k + 2k = 7k = 70$

$k = 70 \div 7 = 10$

$b = 1 \times 10 = 10$

✓24 and 28

Q23 · ● Greater Depth · 4 marks

METHOD

Difference in parts = $7 - 6 = 1$

$$4 \div 1 = 4$$

Numbers = $6 \times 4 = 24$ and $7 \times 4 = 28$

✓12 and 14

Q24 · ● Greater Depth · 4 marks

METHOD

Difference in parts = $7 - 6 = 1$

$$2 \div 1 = 2$$

Numbers = $6 \times 2 = 12$ and $7 \times 2 = 14$

✓15

Q25 · ● Greater Depth · 4 marks

METHOD

$$a + c = 2k + 3k = 5k = 25$$

$$k = 25 \div 5 = 5$$

$$b = 3 \times 5 = 15$$

✓28 and 35

Q26 · ● Greater Depth · 4 marks

METHOD

Difference in parts = $5 - 4 = 1$

$$7 \div 1 = 7$$

Numbers = $4 \times 7 = 28$ and $5 \times 7 = 35$

✓24 and 40

Q27 · ● Greater Depth · 4 marks

METHOD

Difference in parts = $5 - 3 = 2$

$$16 \div 2 = 8$$

Numbers = $3 \times 8 = 24$ and $5 \times 8 = 40$

✓ 8 and 12

Q28 · ● Greater Depth · 4 marks

METHOD

Difference in parts = $3 - 2 = 1$

$4 \div 1 = 4$

Numbers = $2 \times 4 = 8$ and $3 \times 4 = 12$

✓ 12 and 28

Q29 · ● Greater Depth · 4 marks

METHOD

Difference in parts = $7 - 3 = 4$

$16 \div 4 = 4$

Numbers = $3 \times 4 = 12$ and $7 \times 4 = 28$

✓ 12

Q30 · ● Greater Depth · 4 marks

METHOD

$a + c = 2k + 3k = 5k = 10$

$k = 10 \div 5 = 2$

$b = 6 \times 2 = 12$