



eClassroom

GCSE Mathematics

Ratio

Worked Solutions

Pearson Edexcel GCSE & iGCSE Mathematics



Section A — Foundation — Worked Solutions

[Fluency] Question 1

HCF(24,36)=12. Divide both by 12:

∴ **2:3**

[Fluency] Question 2

Multiply both by 2: 3:9. Divide by 3:

∴ **1:3**

[Fluency] Question 3

Total parts=8. Each part=£72/8=£9

3 parts=£27, 5 parts=£45

∴ **£27 and £45**

[Fluency] Question 4

3 parts=24 boys → 1 part=8. Girls=4×8

∴ **32 girls**

[Fluency] Question 5

1 part=15kg. Sand=4 parts=4×15

∴ **60 kg**

[Reasoning] Question 6

Total parts=10. Each part=£200/10=£20

2 parts=£40, 3 parts=£60, 5 parts=£100

∴ **£40, £60, £100**

[Reasoning] Question 7

Let Tom=5x, Jerry=3x. $5x-3x=40 \rightarrow 2x=40 \rightarrow x=20$

Tom=5×20=£100, Jerry=3×20=£60

∴ **Tom: £100, Jerry: £60**



**[Reasoning] Question 8**

Let $A=x$, $B=3x$. After adding 10: $(x+10):3x=1:2$

$$2(x+10)=3x \rightarrow 2x+20=3x \rightarrow x=20$$

$$\therefore \mathbf{A = 20}$$

[Problem Solving] Question 9

(a) 300g for 4 \rightarrow 75g per person $\rightarrow 7 \times 75=525$ g

(b) 6 people need $6 \times 75=450$ g. $500\text{g} \geq 450\text{g}$.

\therefore **(a) 525 g (b) Yes, 500 g is enough (needs 450 g)**

[Problem Solving] Question 10

(a) $4.6 \times 25000=115000\text{cm}=1.15\text{km}$

(b) $3.5\text{km}=350000\text{cm}$. Map length= $350000 \div 25000=14\text{cm}$

\therefore **(a) 1.15 km (b) 14 cm**



Section B — Higher — Worked Solutions

[Fluency] Question 1

Divide both by 3: $1:5/3$

$\therefore 1 : 5/3$ (or $1:1.667$)

[Fluency] Question 2

$\text{LCM}(5,2)=10$. $A:B=6:10$; $B:C=10:35$

$A:B:C=6:10:35$

$\therefore 6:10:35$

[Fluency] Question 3

Total parts=14. Each part= $168/14=12$

$3 \times 12=36$, $4 \times 12=48$, $7 \times 12=84$

$\therefore 36, 48, 84$

[Reasoning] Question 4

$\text{LCM}(3,4)=12$. $x:y=8:12$; $y:z=12:15$

$x:y:z=8:12:15$

$\therefore 8:12:15$

[Reasoning] Question 5

100g of A: 75g Cu, 25g Zn. 100g of B: 40g Cu, 60g Zn.

Total: 115g Cu, 85g Zn. $\text{GCD}(115,85)=5$

$\therefore 23:17$

[Reasoning] Question 6

Shares: $2:5:7$ of $\pounds 1260 \rightarrow$ each part= $\pounds 90 \rightarrow \pounds 180, \pounds 450, \pounds 630$

Elders gives $\pounds 630 \div 3 = \pounds 210$ to youngest

Youngest: $\pounds 180 + \pounds 210 = \pounds 390$; Middle: $\pounds 450$; Eldest: $\pounds 630 - \pounds 210 = \pounds 420$

\therefore Youngest: $\pounds 390$, Middle: $\pounds 450$, Eldest: $\pounds 420$

**[Problem Solving] Question 7**

Multiply by 10: 24:36:12. GCD=12. Divide by 12:

$$\therefore \mathbf{2:3:1}$$

[Problem Solving] Question 8

Gold: $750 \times (18/24) + 600 \times (9/24) = 562.5 + 225 = 787.5\text{g}$

Total: 1350g. Carat = $(787.5/1350) \times 24 = 14$

$$\therefore \mathbf{14 \text{ carat}}$$

[Problem Solving] Question 9

$$5(x+2) = 2(3x-1)$$

$$5x+10 = 6x-2 \rightarrow x=12$$

Check: $14:35 = 2:5$ ✓

$$\therefore \mathbf{x = 12}$$

[Problem Solving] Question 10

Gold value: $3\text{g} \times £40 = £120$. Silver value: $2\text{g} \times £0.50 = £1$.

Ratio: 120:1

$$\therefore \mathbf{120:1}$$