

3.5 Answers

GCSE Mathematics Ratio and Similarity

3.5.1 Solutions (3.1 Warm up)

(i)

$$\frac{441}{676}$$

(ii)

$$\frac{2401}{1156}$$

(iii)

$$\frac{1024}{8281}$$

(iv)

$$\frac{4913}{29791}$$

(v)

$$\frac{343}{34389}$$

(vi)

$$\frac{250047}{125000}$$

(vii)

$$\frac{18}{25}$$

(viii)

$$\frac{14}{66}$$

(ix)

$$\frac{79}{99}$$

(x)

$$\frac{9}{5}$$

(xi)

$$\frac{1}{10}$$

(xii)

$$\frac{46}{51}$$

(xiii)

$$\frac{2}{3}$$

(xiv)

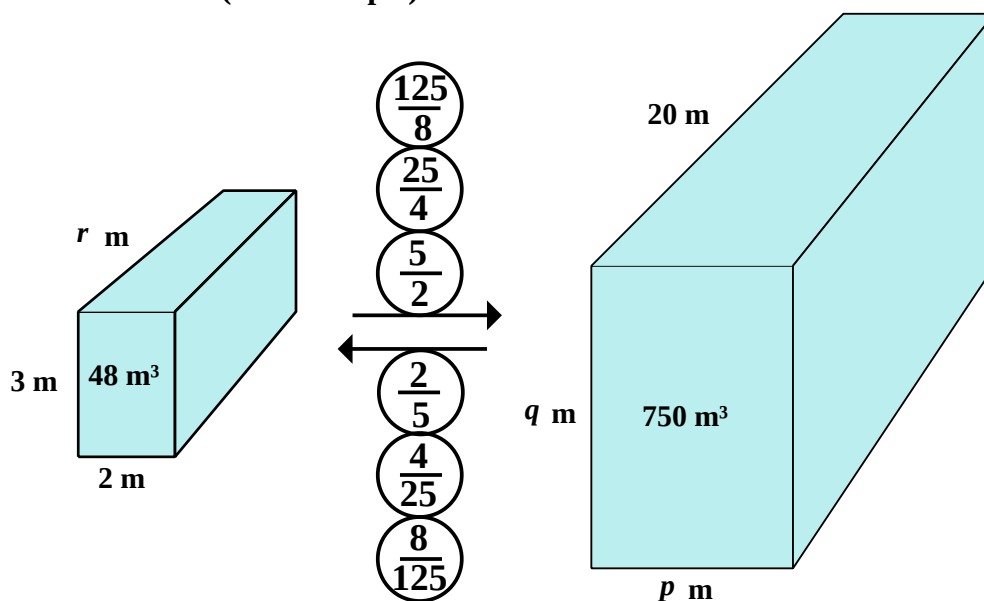
$$\frac{16}{29}$$

(xv)

$$\frac{95}{96}$$

[15 marks]

3.5.2 Solutions (3.3 Example)



(i)

$$p = 2 \times \frac{5}{2} = 5 \text{ m}$$

$$q = 3 \times \frac{5}{2} = 7.5 \text{ m}$$

$$r = 20 \times \frac{2}{5} = 8 \text{ m}$$

[3 marks]

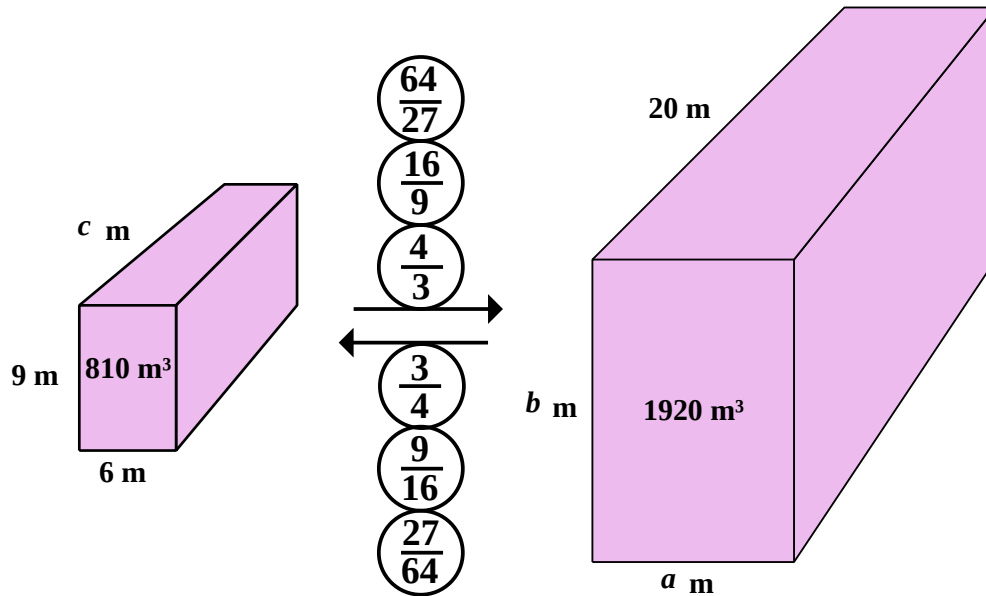
(ii)

$$\frac{25}{4} \quad \text{or} \quad 6.25$$

[2 marks]

3.5.3 Solutions (3.4 Exercise)

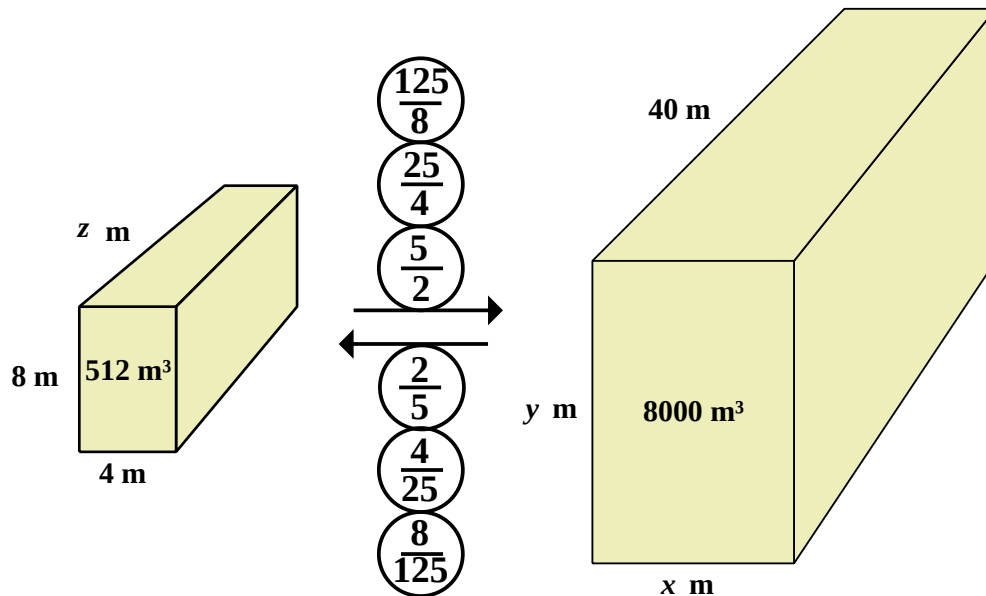
Answer 1



(i) $a = 6 \times \frac{4}{3} = 8 \text{ m}$ $b = 9 \times \frac{4}{3} = 12 \text{ m}$ $r = 20 \times \frac{3}{4} = 15 \text{ m}$
[3 marks]

(ii) $\frac{16}{9}$
[2 marks]

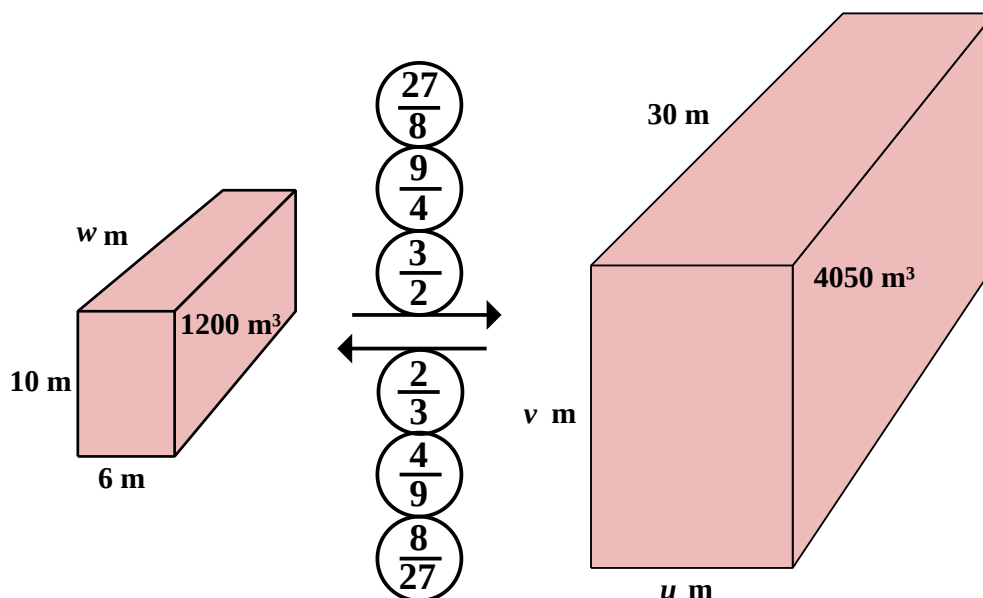
Answer 2



(i) $x = 4 \times \frac{5}{2} = 10 \text{ m}$ $y = 8 \times \frac{5}{2} = 20 \text{ m}$ $z = 40 \times \frac{2}{5} = 16 \text{ m}$
[3 marks]

(ii) $\frac{25}{4}$
[2 marks]

Answer 3



(i) $u = 6 \times \frac{3}{2} = 9 \text{ m}$ $v = 10 \times \frac{3}{2} = 15 \text{ m}$ $w = 30 \times \frac{2}{3} = 20 \text{ m}$
[3 marks]

(ii) $\frac{9}{4}$
[2 marks]

Answer 4

(i) YES
[1 mark]

(ii) 75 cm^3
[3 marks]

Answer 5

(i) $\frac{14}{4} = \frac{21}{6} = \frac{28}{8}$ All cancel down down to $\frac{7}{2}$
[2 marks]

(ii) (iii) (iv)
 $lsf = \frac{7}{2}$ $asf = \frac{49}{4}$ $vsf = \frac{343}{8}$
[1, 1, 1 marks]

(v) (a) 8232
(b) 192
(c) 8232
(d) $= V_{BIG}$
[1, 1, 1, 1 marks]

Answer 6

NO

Answer 7

(i) YES
(ii) 500 cm^3

Answer 8

$80 \text{ cm} \times 88 \text{ cm} \times 56 \text{ cm}$

[1, 1, 3, 2 marks]

Answer 9

$$14 \text{ cm} \times 70 \text{ cm} \times 77 \text{ cm}$$

Answer 10

- (i) NO
 (ii) NO
 (iii) YES

[2, 3 marks]

Answer 11

(i) $lsf = \frac{3}{2}$ (ii) $asf = \frac{9}{4}$ (iii) $vsf = \frac{27}{8}$

[1, 1, 1 mark]

(iv) 135 cm^3

[2 marks]

Answer 12

(i) $\frac{3}{2}$

[1 mark]

(ii) 15 cm

[1 mark]

(iii) 40 cm

[1 mark]

Answer 13

Edge length smaller cube is 6cm.

$$\therefore V_{SMALL} = 6^3 = 216$$

$$\therefore V_{LARGE} = 10^3 \times 216 = 216\,000 \text{ cm}^3$$

[3 marks]

Answer 14

(i) $\frac{5}{4}$

[1 mark]

(ii) 15 cm

[1 mark]

(iii) 20 cm

[1 mark]

Answer 15

$$lsf = \sqrt[3]{2}$$

[3 marks]

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Teachers may obtain detailed worked solutions to the exercises by email from MHHShrewsbury@Gmail.com