

Fully-Worked Solutions

PRACTICE 4

Section A

1 Scale = $\frac{8}{x} = \frac{1}{4}$

Actual length = $x = 8 \times 4 = 32$ cm

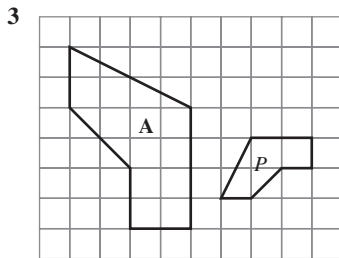
Answer: D

2 Scale = $1 : \frac{1}{5} = \frac{5}{1}$

$\frac{3}{x} = \frac{5}{1}$

Actual length = $x = \frac{3}{5} = 0.6$ cm

Answer: B



Answer: A

Section B

1 (a) (i) Scale = $\frac{2}{6} = 1 : 3$

3 : 1 ☐

$1 : \frac{1}{3}$ ☐

1 : 3 ☒

(ii) $\frac{1}{3} = \frac{0.9}{BC}$

$BC = 0.9 \times 3 = 2.7$ cm

0.3 cm ☐

2.7 cm ☒

3 cm ☐

(b) (i) The width of the rectangle in the scale drawing if the actual width is 4 cm.

Scale = $1 : \frac{1}{2} = \frac{2}{1}$

$\frac{x}{4} = \frac{2}{1}$

(ii) Scale width, $x = 2 \times 4$
= 8 cm

The actual length of the rectangle if the length in the scale drawing is 18 cm.

$\frac{18}{y} = \frac{2}{1}$

Actual length, $y = \frac{18}{2}$
= 9 cm

4 Scale = $1 : \frac{1}{12} = \frac{12}{1}$

$\frac{9}{x} = \frac{12}{1}$

Actual length, $x = \frac{9}{12} = 0.75$ cm
= 7.5 mm

Answer: C

5 Scale = $1 : n = \frac{1}{n}$

$\frac{1}{n} = \frac{2}{14}$

$n = 7$

Answer: B

6 Scale = $1 : n = \frac{1}{n}$

$\frac{1}{n} = \frac{5}{5\,000\,000}$

$n = 1\,000\,000$

Answer: D

The width of the rectangle in the scale drawing if the actual width is 4 cm.



The actual length of the rectangle if the length in the scale drawing is 18 cm.

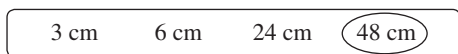


2 (a)

	Statement	(✓) or (X)
(i)	If a polygon is drawn to a scale of $1 : n$ where $n > 1$, then the polygon in the drawing is bigger than the actual polygon.	X
(ii)	If the linear scale of a map is $1 : 1000$, then its area scale is $1 : 1\,000\,000$.	✓

(b) (i) $\frac{12}{x} = \frac{1}{4}$

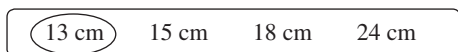
Actual length, $x = 12 \times 4$
 $= 48$ cm



(ii) $AC = \sqrt{20^2 + 48^2} = 52$ cm

$\frac{y}{52} = \frac{1}{4}$

Scaled width, $y = \frac{52}{4}$
 $= 13$ cm



3 (a)

	Statement	TRUE or FALSE
(i)	The scale used to draw triangle I is $1 : \frac{1}{2}$.	FALSE
(ii)	The scale used to draw triangle II is $1 : \frac{1}{5}$.	TRUE

(b) (i) $\frac{r}{7} = \frac{1}{2}$

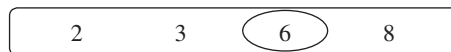
Radius, $r = \frac{7}{2} = 3.5$ cm



(ii) Scale = $1 : \frac{1}{3} = \frac{3}{1}$
 $\frac{9}{r} = \frac{3}{1}$

Radius, $r = \frac{9}{3} = 3$ cm

$d = 3 \times 2 = 6$ cm



Section C

1 (a) (i) Distance = $\frac{1}{2\,500\,000} \times 15\,000\,000$

$= 6$ cm

(ii) Scale = $\frac{5}{15\,000\,000} = \frac{1}{n}$

$n = \frac{15\,000\,000}{5} = 3\,000\,000$

(b) (i) Scale = $\frac{7.2}{1.2} = \frac{1}{n}$

$n = \frac{1}{6}$

(ii) $SR = \sqrt{3^2 + 7.2^2}$ cm $= \sqrt{60.84} = 7.8$ cm

Perimeter of trapezium in drawing

$= 7.2 + 5 + 8 + 7.8$

$= 28$ cm

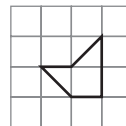
Scale = $\frac{6}{1} = \frac{28}{p}$

Actual perimeter,

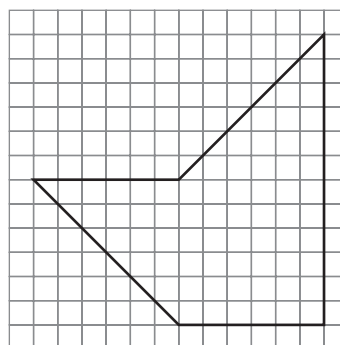
$p = \frac{28}{6}$

$= 4\frac{2}{3}$ cm

(c) (i)



(ii)



$$2 \text{ (a) (i) Scale} = \frac{4.5}{900\,000} = \frac{1}{200\,000}$$

$$= 1 : 200\,000$$

$$\text{(ii) Length of river on the map}$$

$$= \frac{2\,500\,000}{200\,000}$$

$$= 12.5 \text{ cm}$$

$$\text{(b) (i) Scale} = \frac{6}{48} = \frac{1}{8}$$

$$n = 8$$

$$\text{(ii) Area of triangle } PQR$$

$$= \frac{2\,880}{8^2}$$

$$= 45 \text{ cm}^2$$

$$\frac{1}{2} \times QR \times 6 = 45$$

$$QR = 15 \text{ cm}$$

$$\text{(c) (i) Scale} = \frac{14}{2\,100} = \frac{1}{150}$$

$$= 1 : 150$$

$$\text{(ii) Dimensions of the smallest room (III)}$$

$$= (4 \times 150) \text{ cm} \times (4 \times 150) \text{ cm}$$

$$= 6 \text{ m} \times 6 \text{ m}$$

$$\text{(iii) Difference between the actual areas of room II and room IV}$$

$$= (20 \times 150^2) - (18 \times 150^2) \text{ cm}^2$$

$$= 45\,000 \text{ cm}^2$$

$$= 4.5 \text{ m}^2$$