Fully-Worked Solutions

PRACTICE 3

Section A

$$\frac{32}{4} = 8 \text{ cm}$$

$$A = 8^2$$
$$= 64 \text{ cm}^2$$

Answer: C

2 Answer: C

$$3 \left(3\frac{2}{5}\right)^2 = \left(\frac{17}{5}\right)^2 = \frac{289}{25} = 11.56$$

Answer: D

4 52 900 =
$$5.29 \times 10\ 000$$

= $(2.3)^2 \times 100^2$
= $(2.3 \times 100)^2$
= 230

Answer: C

5 25, 36, 49, 64, 81, 100 Answer: B

6 $\sqrt{36} = 6 \text{ cm}$

Perimeter = 4×6

= 24 cm

Answer: D

$$7 \left(\frac{\sqrt{2} \times \sqrt{18}}{3}\right)^2 = \left(\frac{\sqrt{2 \times 18}}{3}\right)^3$$
$$= \left(\frac{\sqrt{36}}{3}\right)^2$$
$$= \left(\frac{6}{3}\right)^2$$
$$= 2^2$$
$$= 4$$

Answer: B

8 Answer: B

9
$$8 - \left(1 \frac{2}{3}\right)^3 = 8 - \left(\frac{5}{3}\right)^3$$

= $8 - \frac{125}{27}$
= $\frac{91}{27}$
= $3\frac{10}{27}$

Answer: B

10
$$\sqrt[3]{216} = 6$$

12 × 6 = 72 cm
Answer: D

11
$$\sqrt[3]{-\frac{27}{512}} = \sqrt[3]{\left(-\frac{3}{8}\right) \times \left(-\frac{3}{8}\right) \times \left(-\frac{3}{8}\right)}$$

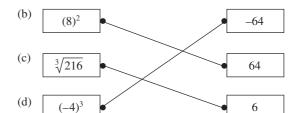
$$x = -\frac{3}{8}$$

Answer: B

12 27, 64, 125, 216, 343, 512, 729, 1 000 Answer: A

Section B

1 (a)
$$\sqrt{16}$$
 4



- 2 (a) FALSE
 - (b) TRUE
 - (c) TRUE
 - (d) FALSE

4 (a)
$$\sqrt{\frac{4}{25}} = \frac{2}{5}$$
 (b)

(b)
$$[-3]^2 = 9$$

(c)
$$(8)^3 = 512$$

(d)
$$\sqrt[3]{-729} = -9$$

5 (a)
$$(-7)^2 = -49$$

(d)
$$\sqrt{-729} = -9$$
49 \checkmark -343

(b)
$$\left(-\frac{3}{4}\right)^3 = -\frac{9}{16} \qquad -\frac{27}{64} \checkmark \qquad \frac{27}{64}$$

(c)
$$\sqrt[3]{125} = 5$$
 \checkmark 25 -5

(d)
$$\sqrt{121} = -11$$
 11 \checkmark 121

Section C

- 1 (a) (i) 10.563
 - (ii) 3.606
 - (iii) 2.759

(b) (i)
$$\sqrt[3]{729} = 9 \text{ cm}$$

 $\frac{9}{2} = 3 \text{ cm}$

(ii)
$$A_A = 9 \times 9 = 81 \text{ cm}^2$$

 $A_B = 3 \times 3 = 9 \text{ cm}^2$
Difference = $81 - 9$
= 72 cm^2

(c)
$$64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

 $\sqrt[3]{64} = \sqrt[3]{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2}$
 $= \sqrt[3]{4 \times 4 \times 4}$
 $= 4$

= 4
2 (a)
$$12^3 = 1728 \text{ cm}^3$$

 $\frac{1728}{64} = 27$

(b)
$$2.4 \text{ m} = 240 \text{ cm}$$
, $3.3 \text{ m} = 330 \text{ cm}$
Area of floor
 $= 240 \times 330$
 $= 79 200 \text{ cm}^2$
Area of tiles
 $= 30^2$
 $= 900 \text{ cm}^2$

Number of tiles needed
$$= \frac{79\ 200}{900}$$

$$= 88$$

(c)
$$(12 - \sqrt{64})^3 = (12 - 8)^3$$

= 4^3
= 64

(d)
$$\frac{28}{4} = 7 \text{ cm}$$

Area = 7^2
= 49 cm^2

3 (a)
$$\sqrt[3]{1728} = 12 \text{ cm}$$

 $\sqrt{3.24} = 1.8 \text{ cm} = 180 \text{ cm}$
Maximum number of boxes in a row
 $= \frac{180}{12}$
= 15

(b) (i)
$$3.2^3 \approx 3^3$$

= 27
(ii) $\sqrt{81.8} \approx \sqrt{81}$
= 9

(c) (i)
$$\sqrt{196} = 14 \text{ m}$$

Perimeter = 4×14
= 56 m
(ii) $56 \times 28 = \text{RM} \cdot 568$