Fully-Worked Solutions

PRACTICE 3

Section A

1 $\frac{32}{4} = 8$ cm

$A = 8^2$

$= 64$ 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 $\sqrt{36} = 6$ cm

Perimeter $= 4 \times 6$

$= 24$ 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 $\sqrt[3]{216} = 6$

$12 \times 6 = 72$ 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

(b) $(8)^2$ → 64

(c) $\sqrt[3]{216}$ → 6

(d) $(-4)^3$ → –64

2 (a) FALSE

(b) TRUE

(c) TRUE

(d) FALSE

3

16	(8)	9	56	72	(27)
(64)	36	(125)	4	10	90

4 (a) $\sqrt{\boxed{\frac{4}{25}}} = \frac{2}{5}$ (b) $\boxed{-3}^2 = 9$

(c) $\left(\boxed{8}\right)^3 = 512$ (d) $\sqrt[3]{\boxed{-729}} = -9$

5 (a) $(-7)^2 = -49$ ☐ 49 ✓ –343 ☐

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

(c) $\sqrt[3]{125} = 5$ ✓ 25 ☐ –5 ☐

(d) $\sqrt{121} = -11$ ☐ 11 ✓ 121 ☐

Section C

1 (a) (i) 10.563

(ii) 3.606

(iii) 2.759

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

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

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

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

2 (a) $12^3 = 1\ 728\ \text{cm}^3$
$\frac{1\ 728}{64} = 27$

(b) 2.4 m = 240 cm, 3.3 m = 330 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 $= 7^2$
$= 49\ \text{cm}^2$

3 (a) $\sqrt[3]{1\ 728} = 12\ \text{cm}$
$\sqrt{3.24} = 1.8\ \text{cm} = 180\ \text{cm}$
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 $= 4 \times 14$
$= 56\ \text{m}$

(ii) $56 \times 28 = \text{RM}1\ 568$