

ANSWERS

Chapter 1 Similarity

Practice set 1.1

1. $\frac{3}{4}$ 2. $\frac{1}{2}$ 3. 3 4. 1:1 5. (1) $\frac{BQ}{BC}$, (2) $\frac{PQ}{AD}$, (3) $\frac{BC}{DC}$, (4) $\frac{DC \times AD}{QC \times PQ}$

Practice set 1.2

1. (1) is a bisector. (2) is not a bisector. (3) is a bisector.
 2. $\frac{PN}{NR} = \frac{PM}{MQ} = \frac{3}{2}$, therefore line NM \parallel side RQ 3. QP = 3.5 5. BQ = 17.5
 6. QP = 22.4 7. $x = 6$; AE = 18 8. LT = 4.8 9. $x = 10$
 10. Given, XQ, PD, Given, $\frac{XR}{RF} = \frac{XQ}{QE}$, Basic proportionality theorem, $\frac{XP}{PD} = \frac{XR}{RF}$

Practice set 1.3

1. $\triangle ABC \sim \triangle EDC$, AA test 2. $\triangle PQR \sim \triangle LMN$; SSS test of similarity
 3. 12 metre 4. AC = 10.5 6. OD = 4.5

Practice set 1.4

1. Ratio of areas = 9 : 25 2. $\boxed{PQ^2}$, $\boxed{\frac{4}{9}}$ 3. $\boxed{A(\triangle PQR)}$, $\frac{16}{25}$, $\frac{4}{5}$
 4. MN = 15 5. 20 cm 6. $4\sqrt{2}$
 7. \boxed{PF} ; \boxed{x} + $\boxed{2x}$; $\boxed{\angle FPQ}$; $\boxed{\angle FQP}$; $\frac{DF^2}{PF^2}$; $\boxed{20}$; $\boxed{45}$; $\boxed{45} - \boxed{20}$; $\boxed{25 \text{ sq. unit}}$

Problem set 1

1. (1) (B), (2) (B), (3) (B), (4) (D), (5) (A)
 2. $\frac{7}{13}$, $\frac{7}{20}$, $\frac{13}{20}$ 3. 9 cm 4. $\frac{3}{4}$ 5. 11 cm 6. $\frac{25}{81}$ 7. 4
 8. PQ = 80, QR = $\frac{280}{3}$, RS = $\frac{320}{3}$ 9. $\frac{PM}{MQ} = \frac{PX}{XQ}$, $\frac{PM}{MR} = \frac{PY}{YR}$,
 10. $\frac{AX}{XY} = \frac{3}{2}$ 12. $\frac{\boxed{3}}{\boxed{2}}$, $\frac{\boxed{3} + \boxed{2}}{\boxed{2}}$, $\frac{\boxed{5}}{\boxed{3}}$, \boxed{AA} , $\frac{\boxed{5}}{\boxed{3}}$, $\boxed{15}$

Chapter 2 Pythagoras Theorem

Practice set 2.1

1. Pythagorean triplets ; (1), (3), (4), (6) 2. NQ = 6 3. QR = 20.5

4. $RP = 12$, $PS = 6\sqrt{3}$

5. $\boxed{\text{Given}}$, $\boxed{45^\circ}$, $\boxed{\frac{1}{\sqrt{2}}}$, $\boxed{\frac{1}{\sqrt{2}}}$, $\boxed{\frac{1}{\sqrt{2}}}$, $\boxed{2}$

6. side = $5\sqrt{2}$ cm, perimeter = $20\sqrt{2}$ cm 7. (1) 18 (2) $4\sqrt{13}$ (3) $6\sqrt{13}$ 8. 37 cm
10. 8.2 metre.

Practice set 2.2

1. 12 2. $2\sqrt{10}$ 4. 18 cm

Problem set 2

1. (1) (B), (2) (B), (3) (A), (4) (C), (5) (D), (6) (C), (7) (B), (8) (A).
2. (1) $a\sqrt{3}$, (2) form a right angled triangle. (3) 61 cm, (4) 15 cm, (5) $x\sqrt{2}$, (6) $\angle PRQ$.
3. $RS = 6$ cm, $ST = 6\sqrt{3}$ cm 4. 20 cm 5. side = 2 cm, perimeter = 6 cm
6. 7 7. $AP = 2\sqrt{7}$ cm 10. 7.5 km / hr 12. 8 cm 14. 8 cm
15. 192 sq.unit 17. 58 18. 26

Chapter 3 Circle

Practice set 3.1

1. (1) 90° , tangent-radius theorem (2) 6 cm ; perpendicular distance
(3) $6\sqrt{2}$ cm (4) 45°
2. (1) $5\sqrt{3}$ cm (2) 30° (3) 60° 4. 9 cm

Practice set 3.2

1. 1.3 cm 2. 9.7 cm 4. (3) 110° 5. $4\sqrt{6}$ cm

Practice set 3.3

1. $m(\text{arc DE}) = 90^\circ$, $m(\text{arc DEF}) = 160^\circ$

Practice set 3.4

1. (1) 60° (2) 30° (3) 60° (4) 300° 2. (1) 70° (2) 220° (3) 110° (4) 55°
3. $\angle R = 92^\circ$; $\angle N = 88^\circ$ 7. 44° 8. 121°

Practice set 3.5

1. $PS = 18$; $RS = 10$, 2. (1) 7.5 (2) 12 or 6
3. (1) 18 (2) 10 (3) 5 4. 4

Problem set 3

1. (1) D (2) B (3) B (4) C (5) B (6) D (7) A (8) B (9) A (10) C.
2. (1) 9 cm (2) in the interior of the circle (3) 2 locations, 12 cm
3. (1) 6 (2) $\angle K = 30^\circ$; $\angle M = 60^\circ$ 5. 10 6. (1) 9 cm (2) 6.5 cm

- (3) 90° ; MS : SR = 2 : 1 9. $4\sqrt{3}$ cm
13. (1) 180° (2) $\angle AQP \cong \angle ASQ \cong \angle ATQ$
 (3) $\angle QTS \cong \angle SQR \cong \angle SAQ$ (4) $65^\circ, 130^\circ$ (5) 100° 14. (1) 70°
 (2) 130° (3) 210° 15. (1) 56° (2) 6 (3) 16 or 9 16. (1) 15.5°
 (2) 3.36 (3) 6 18. (1) 68° (2) OR = 16.2, QR = 13 (3) 13 21. 13

Chapter 4 Geometric Constructions

Problem set 4

1. (1) C (2) A (3) A

Chapter 5 Co-ordinate Geometry

Practice set 5.1

1. (1) $2\sqrt{2}$ (2) $4\sqrt{2}$ (3) $\frac{11}{2}$ (4) 13 (5) 20 (6) $\frac{29}{2}$
 2. (1) are collinear. (2) are not collinear. (3) are not collinear. (4) are collinear.
 3. (-1, 0) 7. 7 or -5

Practice set 5.2

1. (1, 3) 2. (1) $\left(-\frac{1}{3}, -\frac{1}{3}\right)$ (2) $\left(\frac{4}{7}, -\frac{11}{7}\right)$ (3) $\left(0, \frac{13}{3}\right)$ 3. 2:7 4. (-6, 3)
 5. 2:5, $k = 6$ 6. (11, 18) 7. (1) (1, 3) (2) (6, -2) (3) $\left(\frac{19}{3}, \frac{22}{3}\right)$
 8. (-1, -7) 9. $h = 7, k = 18$ 10. (0, 2) ; (-2, -3)
 11. (-9, -8), (-4, -6), (1, -4) 12. (16, 12), (12, 14), (8, 16), (4, 18)

Practice set 5.3

1. (1) 1 (2) $\sqrt{3}$ (3) slope cannot be determined.
 2. (1) 2 (2) $-\frac{3}{8}$ (3) $\frac{5}{2}$ (4) $\frac{5}{4}$ (5) $\frac{1}{2}$ (6) slope cannot be determined.
 3. (1) are collinear. (2) are collinear. (3) are not collinear. (4) are collinear.
 (5) are collinear. (6) are collinear.
 4. $-5; \frac{1}{5}; -\frac{2}{3}$ 6. $k = 5$ 7. $k = 0$ 8. $k = 5$

Problem set 5

1. (1) D (2) D (3) C (4) C
 2. (1) are collinear. (2) are collinear. (3) are not collinear. 3. (6, 13) 4. 3:1

5. $(-7, 0)$ 6. (1) $a\sqrt{2}$ (2) 13 (3) $5a$ 7. $\left(-\frac{1}{3}, \frac{2}{3}\right)$
8. (1) Yes, scalene triangle (2) No. (3) Yes, equilateral triangle 9. $k = 5$
13. $5, 2\sqrt{13}, \sqrt{37}$ 14. $(1, 3)$ 16. $\left(\frac{25}{6}, \frac{13}{6}\right)$, radius = $\frac{13\sqrt{2}}{6}$ 17. $(7, 3)$
18. Parallelogram 19. A(20, 10), P(16, 12), R(8, 16), B(0, 20). 20. $(3, -2)$
21. $(7, 6)$ and $(3, 6)$ 22. 10 and 0

Chapter 6 Trigonometry

Practice set 6.1

1. $\cos\theta = \frac{24}{25}$; $\tan\theta = \frac{7}{24}$ 2. $\sec\theta = \frac{5}{4}$; $\cos\theta = \frac{4}{5}$
3. $\operatorname{cosec}\theta = \frac{41}{9}$; $\sin\theta = \frac{9}{41}$ 4. $\sec\theta = \frac{13}{5}$; $\cos\theta = \frac{5}{13}$; $\sin\theta = \frac{12}{13}$
5. $\frac{\sin\theta + \cos\theta}{\sec\theta + \operatorname{cosec}\theta} = \frac{1}{2}$

Practice set 6.2

- Height of the church is 80 metre.
- The ship is 51.90 metre away from the lighthouse.
- Height of the second building is $(10 + 12\sqrt{3})$ metre.
- Angle made by the wire with the horizontal line is 30° .
- Height of the tree is $(40 + 20\sqrt{3})$ metre.
- The length of the string is 69.20 metre.

Problem set 6

1. (1) A (2) B (3) C (4) A
2. $\cos\theta = \frac{60}{61}$ 3. $\sin\theta = \frac{2}{\sqrt{5}}$; $\cos\theta = \frac{1}{\sqrt{5}}$; $\operatorname{cosec}\theta = \frac{\sqrt{5}}{2}$; $\sec\theta = \sqrt{5}$; $\cot\theta = \frac{1}{2}$
4. $\sin\theta = \frac{5}{13}$; $\cos\theta = \frac{12}{13}$; $\operatorname{cosec}\theta = \frac{13}{5}$; $\tan\theta = \frac{5}{12}$; $\cot\theta = \frac{12}{5}$
6. Height of the building is $16\sqrt{3}$ metre.
7. The ship is $100\sqrt{3}$ metre away from the lighthouse.
8. Height of the second building is $(12 + 15\sqrt{3})$ metre.
9. The maximum height that ladder can reach is 20.80 metre.

10. the plane was 1026 metre high at the time of landing.

Chapter 7 Mensuration

Practice set 7.1

1. 11.79 cm^3 2. 113.04 cm^3 3. 1413 sq.cm (by taking $\pi = 3.14$) 4. 616 sq.cm
5. 21 cm 6. 12 jugs 7. 9 cm 8. $273\pi \text{ sq.cm}$ 9. 20 tablets
10. 94.20 cm^3 , 103.62 sq.cm 11. 5538.96 sq.cm , 38772.72 cm^3
12. $1468.67\pi \text{ cm}^3$

Practice set 7.2

1. 10.780 litre 2. (1) 628 sq.cm (2) 1356.48 sq.cm (3) 1984.48 cm^3

Practice set 7.3

1. 47.1 sq.cm 2. 25.12 cm 3. 3.85 sq.cm 4. 214 sq.cm 5. 4 cm
6. (1) 154 sq.cm (2) 25.7 sq.cm (3) 128.3 sq.cm 7. 10.2 sq.cm
8. 7.3 cm ; 22 cm 9. (1) 90° (2) 22 cm
10. (1) 12.83 sq.cm (2) 89.83 sq.cm (3) 115.5 sq.cm 11. 3.5 cm
12. $x = 154 \text{ sq.cm}$; $y = 38.5 \text{ sq.cm}$; $z = 101.5 \text{ sq.cm}$
13. (1) 84.87 sq.cm (2) 25.67 sq.cm (3) 77.01 sq.cm (4) 7.86 sq.cm

Practice set 7.4

1. 3.92 sq.cm 2. 9.08 sq.cm 3. 0.65625 sq.unit 4. 20 cm
5. 20.43 sq.cm ; 686.07 sq.cm

Problem set 7

1. (1) A, (2) D, (3) B, (4) B, (5) A, (6) A, (7) D, (8) C.
2. 20.35 litre 3. 7830 balls 4. 2800 coins (by taking $\pi = \frac{22}{7}$) 5. Rs. 6336
6. 452.16 sq.cm ; 3385.94 gm 7. 2640 sq.cm 8. 243 metre
9. 150° ; $5\pi \text{ cm}$ 10. 39.28 sq.cm

