

EXERCISE 12.1

1. y and z - coordinates are zero
2. y - coordinate is zero
3. I, IV, VIII, V, VI, II, III, VII
4. (i) XY - plane (ii) $(x, y, 0)$ (iii) Eight

EXERCISE 12.2

1. (i) $2\sqrt{5}$ (ii) $\sqrt{43}$ (iii) $2\sqrt{26}$ (iv) $2\sqrt{5}$
4. $x - 2z = 0$ 5. $9x^2 + 25y^2 + 25z^2 - 225 = 0$

EXERCISE 12.3

1. (i) $\left(\frac{-4}{5}, \frac{1}{5}, \frac{27}{5}\right)$ (ii) $(-8, 17, 3)$ 2. 1 : 2
3. 2 : 3 5. $(6, -4, -2), (8, -10, 2)$

Miscellaneous Exercise on Chapter 12

1. $(1, -2, 8)$ 2. $7, \sqrt{34}, 7$ 3. $a = -2, b = -\frac{16}{3}, c = 2$
4. $(0, 2, 0)$ and $(0, -6, 0)$
5. $(4, -2, 6)$ 6. $x^2 + y^2 + z^2 - 2x - 7y + 2z = \frac{k^2 - 109}{2}$

EXERCISE 13.1

1. 6 2. $\left(\pi - \frac{22}{7}\right)$ 3. π 4. $\frac{19}{2}$
5. $-\frac{1}{2}$ 6. 5 7. $\frac{11}{4}$ 8. $\frac{108}{7}$
9. b 10. 2 11. 1 12. $-\frac{1}{4}$
13. $\frac{a}{b}$ 14. $\frac{a}{b}$ 15. $\frac{1}{\pi}$ 16. $\frac{1}{\pi}$