1. Locate $\sqrt{3}$ on the number line.   [3]

2. Write the coefficients of x^2 in each of the following: [1]

(i) $2 + x^2 + x$ (ii) $2 - x^2 + x^3$ (iii) $\dfrac{\pi}{2}x^2 + x$ (iv) $\sqrt{2}\,x - 1$

3. Verify that $x^3 + y^3 + z^3 - 3xyz = \dfrac{1}{2}(x + y + z)\,[(x\text{-}y)^2\,(y\text{-}z)^2\,(z\text{-}x)^2]$ [3]

4. Write the coordinates of the points marked on the axes in Fig. 3.12.   [1]
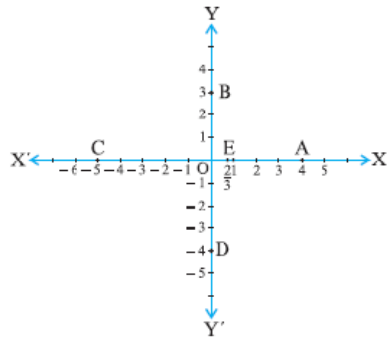
5. Two coins are tossed simultaneously 500 times, and we get   [3]
   Two heads : 105 times One head : 275 times No head : 120 times
    Find the probability of occurrence of each of these events.

6. . Check which of the following are solutions of the equation $x - 2y = 4$ and which are
   not: (i) (0, 2) (ii) (2, 0) (iii) (4, 0)   [3]

7. : Draw the graph of $x + y = 7$.   [3]

.8. How would you rewrite Euclid's fifth postulate so that it would be easier to
   understand?   [3]

9. In Fig. 6.17, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray

lying between rays OP and OR. Prove that $\angle$ ROS $= \dfrac{1}{2}$ ($\angle$ QOS $- \angle$ POS).   [3]
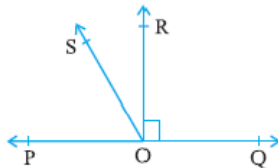

Fig. 6.17

10. In Fig. 6.38, the sides AB and AC of $\triangle$ ABC are produced to points E and D
respectively. If bisectors BO and CO of $\angle$ CBE and $\angle$ BCD respectively meet at point

O, then prove that $\angle$ BOC $= 90° - \dfrac{1}{2}$ $\angle$ BAC.   [3]
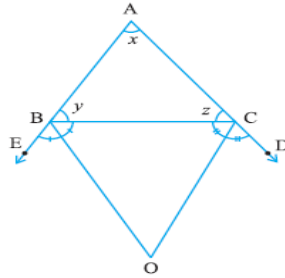
Fig. 6.38

11. AB is a line segment and P is its mid-point. D and E are points on the same side of AB such that ∠BAD = ∠ABE and ∠EPA = ∠DPB (see Fig. 7.22). Show that
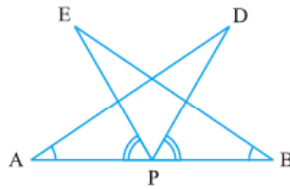(i) Δ DAP E ≅ Δ EBP   (ii) AD = BE   [3]

Fig. 7.22

12. ABCD is a trapezium in which AB ‖ DC, BD is a diagonal and E is the mid-point of AD. A line is drawn through E parallel to AB intersecting BC at F (see Fig. 8.30). Show that F is the mid-point of BC.   [3]
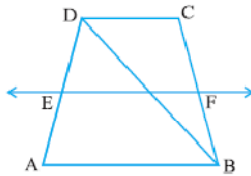

Fig. 8.30

13. Show that a median of a triangle divides it into two triangles of equal areas.   [3]

14. : Two circles intersect at two points A and B. AD and AC are diameters to   [3]
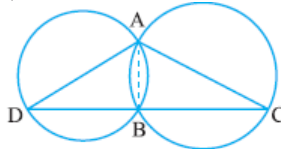the two circles (see Fig.10.34). Prove that B lies on the line segment DC.

Fig. 10.34

15. Construct a triangle ABC in which BC = 7cm, ∠B = 75° and AB + AC = 13 cm.[3]

16. The length, breadth and height of a room are 5 m, 4 m and 3 m respectively. Find the cost of white washing the walls of the room and the ceiling at the rate of   [3]
Rs 7.50 per m^2.

17 Three coins were tossed 30 times simultaneously. Each time the number of heads occurring was noted down as follows: [3]

    0 1 2 2 1 2 3 1 3 0
    1 3 1 1 2 2 0 1 2 1
    3 0 0 1 1 2 3 2 2 0

Prepare a frequency distribution table for the data given above.

18.Find the area of a triangle, two sides of which are 8 cm and 11 cm and [3] the perimeter is 32 cm (see Fig. 12.6).
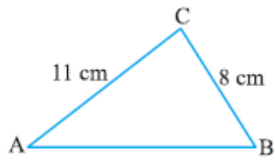

Fig. 12.6