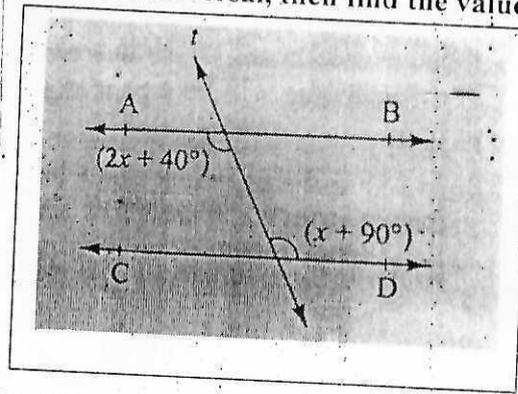
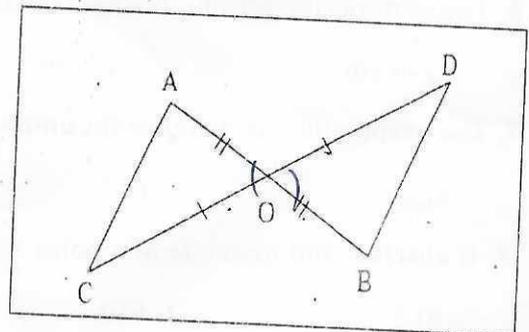


9. $x = 5, y = -2$ is a solution of which linear equation
 a) $2x + y = 9$ b) $2x - y = 12$ c) $x + 3y = 1$ d) $x + 3y = 0$
10. The solution of linear equation $5x - 3y + 15 = 0$ is
 a) $(3, 0)$ b) $(-3, 0)$ c) $(0, 3)$ d) $(0, -3)$
11. How many linear equation in x and y can be satisfied by $x = 1$ and $y = 2$?
 a) Only one b) Two c) Infinitely many d) Three
12. $(a, 0)$ is the solution of the equation $3x + 2y = 6$ for a equals to
 a) -2 b) 2 c) 3 d) -3
13. Two straight lines AB and CD intersect each other at point O if $\angle BOD = 63^\circ$ then the value of $\angle BOC$ is
 a) 63° b) 117° c) 17° d) 153°

14. In the figure, $AB \parallel CD$ and t is a transversal, then find the value of x .



- a) 20° b) 40° c) 80° d) 50°
15. If $AB = QR, BC = PR$ and $CA = PQ$, then
 a) $\triangle ABC \cong \triangle PQR$ b) $\triangle CAB \cong \triangle PRQ$ c) $\triangle BAC \cong \triangle RQP$ d) $\triangle BCA \cong \triangle PQR$
16. What is the area of an equilateral triangle with side 2 cm ?
 a) $\sqrt{6}\text{cm}^2$ b) $\sqrt{3}\text{cm}^2$ c) $\sqrt{8}\text{cm}^2$ d) 4cm^2
17. The point $(0, -7)$ lies
 a) on the x axis b) in the II quadrant
 c) on the y axis d) in the IV quadrant
18. In figure by which criterion triangles OAC and OBD are congruent?
 a) SAS b) ASA
 c) AAS d) SSS



Assertion-Reason Based Questions:

19. Assertion(A): $\sqrt{2}$ is an irrational number.

Reason(R): The decimal expansion of $\sqrt{2}$ is non-terminating non-recurring.

In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

20. Assertion(A): The expression $3x^4 - 4x^2 + x^2 - 2$ is a polynomial in one variable.

Reason(R): The highest exponent of variable in a polynomial is its degree.

In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

SECTION B

21. Show that $(2 + \sqrt{3})(2 - \sqrt{3}) + (5 + \sqrt{2})(5 - \sqrt{2})$ is a rational number.

OR

Find the value of: $(81)^{0.16} \times (81)^{0.09}$.

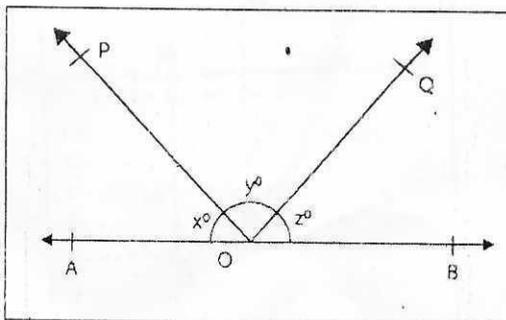
22. Find the value of k, for which the polynomial $x^3 - 3x^2 + 3x + k$ has 3 as its zero.

23. Write four solutions for the equation $2x + y = 11$.

24. Two supplementary angles are in the ratio 2:7. Find the measure of the angles.

OR

In figure AOB is a straight line. If $x : y : z = 4 : 5 : 6$, then find the value of y.



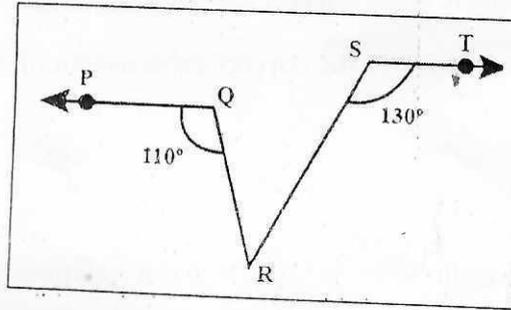
25. Solve the equation $x + 4 = 10$ and state Euclid's axiom used.

SECTION C

26. Express the number $0.\overline{235}$ in the form of p/q , where p and q both are integers and $q \neq 0$.

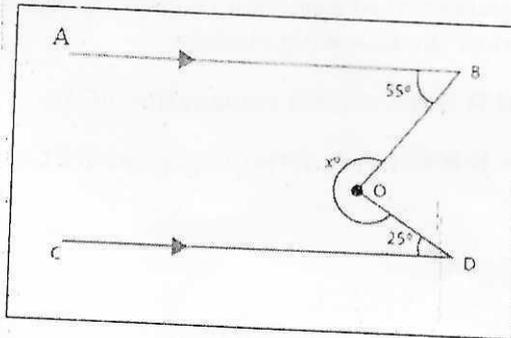
27. Factorise: $y^3 - 3y^2 - 9y - 5$

28. In the given figure, if $PQ \parallel ST$, $\angle PQR = 110^\circ$ and $\angle RST = 130^\circ$, find $\angle QRS$.



OR

In the figure if $AB \parallel CD$. Find x



29. Prove that angles opposite to equal sides of an isosceles triangle are equal.

OR

BE and CF are two equal altitudes of a ΔABC . Prove that triangle ABC is isosceles.

30. The sides of a triangular plot are in the ratio of $3 : 5 : 7$ and its perimeter is 300 m. Find its area.

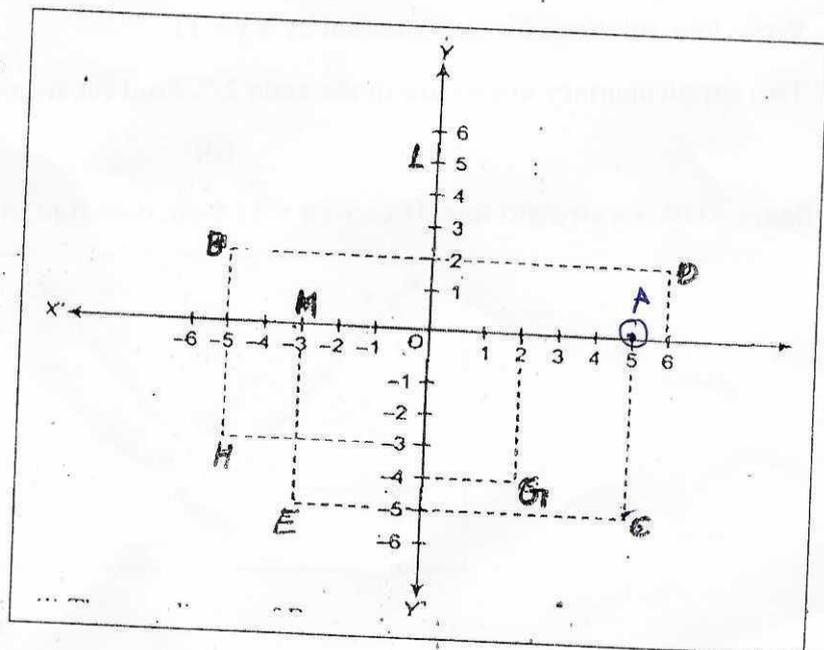
31. From the adjoining graph, write

- a) The coordinates of point D
- b) The abscissa of point H
- c) The point identified by the

coordinates $(-3, -5)$

- d) The ordinate of point B
- e) The area of the figure

obtained by joining the points AMEC

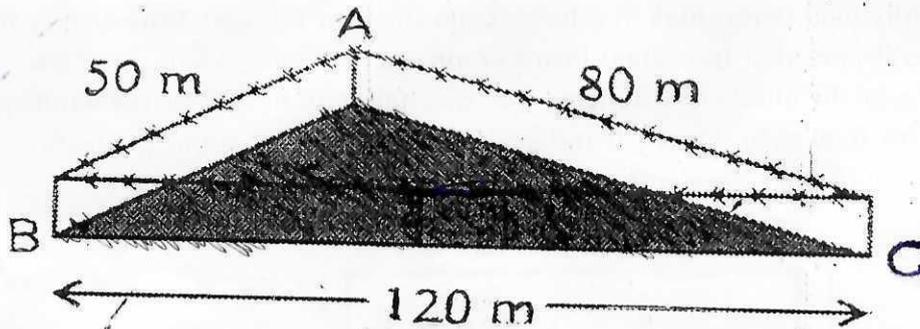


SECTION D

32. The triangular side walls of a flyover have been used for advertisements. The sides of the walls are 15 m, 28 m and 41 m. The advertisements yield as earning of Rs. 500 per m^2 per month. A company hired one of its walls for 6 months. How much rent did it pay?

OR

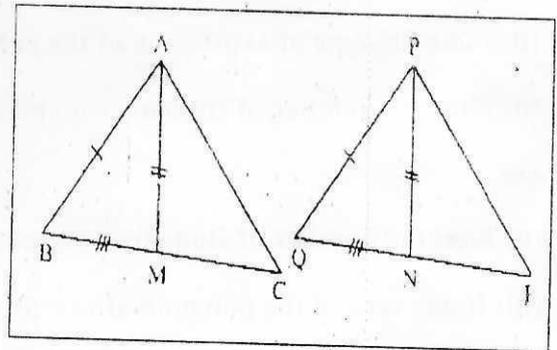
Naresh has a triangular park ABC with sides 120 m, 80 m and 50 m. He wishes to plant grass in the park and so, has to put a fence all around it.



- Find the area of the park.
- Find the cost of fencing the park with barbed wire @ rupees 20 per metre.

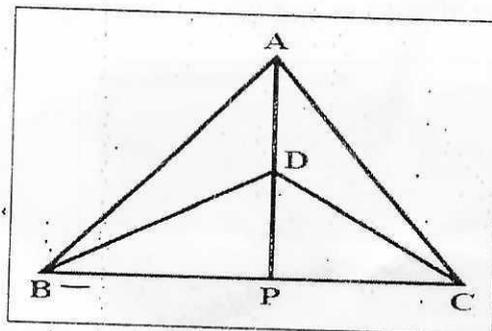
33. In given figures two sides AB and BC and median AM of one triangle ABC are respectively equal to sides PQ and QR and median PN of ΔPQR . Show that:

- $\Delta ABM \cong \Delta PQN$
- $\Delta ABC \cong \Delta PQR$



OR

ΔABC and ΔDBC are two isosceles triangles on the same base BC and vertices A and D are on the same side of BC (see Fig.). If AD is extended to intersect BC at P, show that AP is the perpendicular bisector of BC.



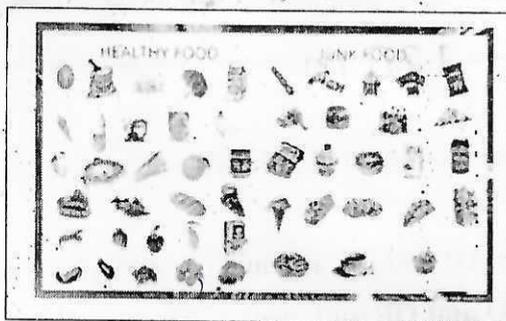
34. If $a + b + c = 5$ and $ab + bc + ca = 10$, then prove that $a^3 + b^3 + c^3 - 3abc = -25$.

35. If $a = \frac{\sqrt{7} - \sqrt{6}}{\sqrt{7} + \sqrt{6}}$ and $b = \frac{\sqrt{7} + \sqrt{6}}{\sqrt{7} - \sqrt{6}}$ then find the value $a + b + ab$.

SECTION E

Case Study Based Questions:

36. Junk food is unhealthy food that is high in calories from sugar or fat, with little dietary fibre, protein, vitamins, minerals, or other important forms of nutritional value. A sample of few students have taken. If a be the number of students who take the junk food, b be the number of students who take healthy food such that $a > b$ and a and b are the zeroes of the quadratic polynomial $f(x) = x^2 - 7x + 10$, then answer the following questions:



(i) Name the type of expression of the polynomial in the above statement?

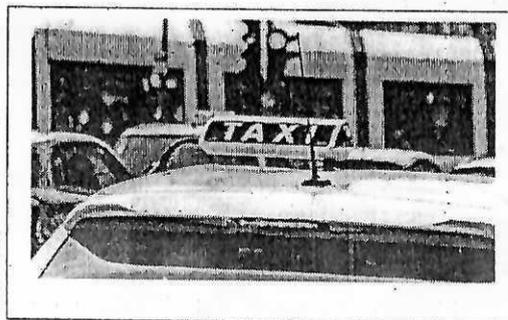
(ii) Find the number of students who take junk food.

OR

(ii) Find the number of students who take healthy food.

(iii) If one zero of the polynomial $x^2 - 5x + 6$ is 2 then find other zero.

37. In Delhi, taxi cabs are running on compressed gas. To hire a taxi cab, one has to go to the location called as taxi stand or book it on a mobile app. Shaila wanted to hire a taxi. So, on enquiring the taxi charges from the prepaid taxi booking office, she got the following information. The taxi fare in Delhi is as follows: For the first kilometer, the fare is 20 and for the subsequent distance it is Rs.12 per km. Based on the above information answer the following questions by taking the distance covered as x km and the total fare as Rs. y .

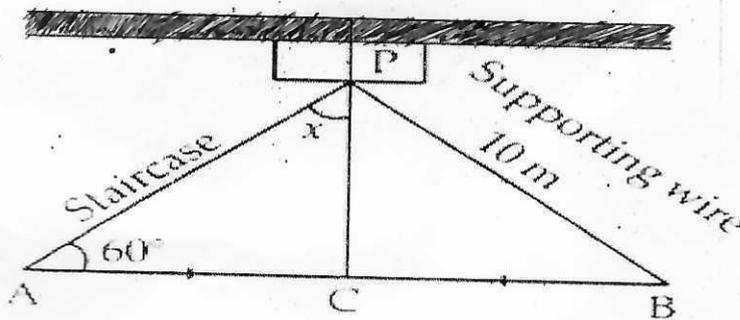


- (i) Write a linear equation for the above-mentioned information..
- (ii) Express the linear equation obtained in (i) in the form $ax + by + c = 0$ and indicate the values of a , b and c .
- (iii) If Shaila has hired the taxi for 26 km, then find the amount to be paid by her as taxi fare.

OR

- (iii) Using variables x and y , write a linear equation whose solution is $(a, -a)$.

38. Aditya went to village in summer vacation. He saw a big pole PC while playing. This pole was tied with a strong wire of 10 m length. Once there was a big spark on this pole, thus wires got damaged very badly. Any small fault was usually repaired with the help of a rope which normal board electricians were carrying on bicycles. This time electricians need a staircase of 10 m, so that it can reach at point P on the pole and this should make 60° with line AC.



Based on this information answer the following questions:

- (i) In ΔPAC and ΔPBC which side is common?
- (ii) Find the measure of $\angle PBA$?
- (iii) In figure, ΔPAC and ΔPBC are congruent due to which criterion? Explain and write the steps.

OR

- (iii) Find the value of $\angle x$.