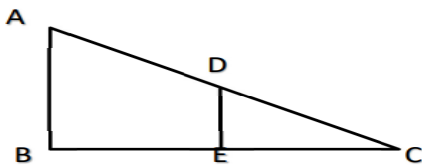
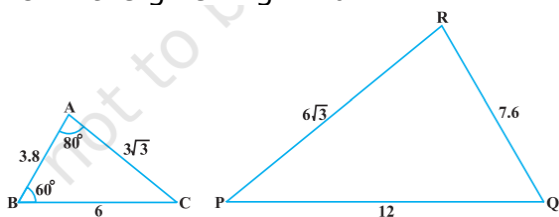


10. If $P(E) = 0.07$, then what is the probability of 'not E'?
- (a) 0.93 (b) 0.95 (c) 0.89 (d) 0.03
11. If two dice are thrown in the air, the probability of getting sum as 3 will be (a) $\frac{2}{18}$ (b) $\frac{3}{18}$ (c) $\frac{1}{18}$ (d) $\frac{1}{36}$
12. A card is selected at random from a well shuffled deck of 52 playing cards. The probability of its being a face card is
- (a) $\frac{3}{13}$ (b) $\frac{4}{13}$ (c) $\frac{6}{13}$ (d) $\frac{9}{13}$
13. The prime factorisation of 98 is
- (a) $2^2 \times 7^2$ (b) 2×7^2 (c) $2^2 \times 7$ (d) 2×7
14. If α and β are the zeroes of the polynomial $f(x) = 4x^2 + 3x + 7$, then $\frac{1}{\alpha} + \frac{1}{\beta}$ is (a) $\frac{7}{3}$ (b) $-\frac{7}{3}$ (c) $\frac{3}{7}$ (d) $-\frac{3}{7}$
15. If the lines given by $3x + 2ky = 2$ and $2x + 5y + 1 = 0$ are parallel, then the value of k is
- (a) $-\frac{5}{4}$ (b) $\frac{2}{5}$ (c) $\frac{15}{4}$ (d) $\frac{3}{2}$
16. The discriminant of the quadratic equation $3x^2 + 8x + 2 = 0$ is
- (a) 24 (b) 40 (c) 58 (d) 64
17. In $\triangle ABC$, $DE \parallel AB$. If $AB = a$, $DE = x$, $BE = b$ and $EC = c$. Then x expressed in terms of a , b and c
- (a) $\frac{ac}{b}$ (b) $\frac{ab}{c}$ (c) $\frac{ac}{b+c}$ (iv) $\frac{ab}{b+c}$



18. In the given fig. find $\angle P$



- (a) 80° (b) 60° (c) 40° (d) 50°

DIRECTION: In the question number 19 and 20, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct option:

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

19. **(Assertion):** $x=2, y=1$ is a solution of pair of equations $3x-2y=4$, and $2x+y=5$

(Reason) : A pair of values (x,y) satisfying each one of the equations in a given system of two simultaneous linear equations in x and y is called a solution of the system of equations .

20. **Assertion (A)** A polynomial whose sum and product of zeroes are -8 and 6 respectively is $x^2 + 8x + 6$.

Reason (R) A polynomial with S as sum of zeroes and P as product of zeroes $x^2 - Sx + P$

SECTION - B

21. If one zero of polynomial $(a^2 + 9)x^2 + 13x + 6a$ is reciprocal of the other, find the value of a .

22. Half the perimeter of a rectangular garden, whose length is 4 m more than its width, is 36 m. Find the dimensions of the garden.

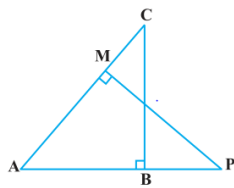
23. Find the HCF of 96 and 404 by prime factorization method. Hence find the LCM.

24. If $\tan(A + B) = \sqrt{3}$ and $\tan(A - B) = 1/\sqrt{3}$; $0^\circ < A + B < 90^\circ$; $A > B$, find A and B .

Or

Find the value of X if, $2 \operatorname{cosec}^2 30^\circ + X \sin^2 60^\circ - \frac{3}{4} \tan^2 30^\circ = 10$

25. In the figure, ABC and AMP are two right triangles, right angled at B and M respectively, prove that: (i) $\triangle ABC \sim \triangle AMP$ (ii) $CA/PA = BC/MP$



SECTION - C

26. Prove that $\sqrt{3}$ is an irrational number.

Or

Two tankers contain 850 litres and 680 litres of petrol respectively. Find the maximum capacity of a container which can measure the petrol of either tanker in an exact number of times.

27. Solve using quadratic formula: $abx^2 + (b^2-ac)x - bc = 0$
28. From a pack of 52 playing cards, Jacks, Queens and Kings of red colour are removed. From the remaining, a card is drawn at random. Find the probability that drawn card is:
- (i) a black king. (ii) a card of red colour. (iii) a card of black colour.

29. If $\cos \theta + \sin \theta = \sqrt{2} \cos \theta$, show that $\cos \theta - \sin \theta = \sqrt{2} \sin \theta$

30. If ABCD is a trapezium with $AB \parallel DC$. E and F are points on non-parallel sides AD and BC respectively such that EF is parallel to AB.

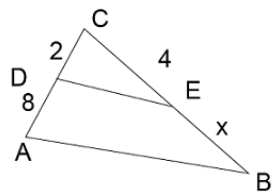
Show that $\frac{AE}{ED} = \frac{BF}{FC}$



31. Prove that $\frac{\sin A - 2\sin^3 A}{2\cos^3 A - \cos A} = \tan A$ Or

Prove that $\sec A (1 - \sin A)(\sec A + \tan A) = 1$

32. From the top of a 7m high building the angle of elevation of the top of a cable tower is 60° and the angle of depression of its foot is 30° . Determine the height of the tower.
33. The sum of the digits of a two digit number is 12. The number obtained by interchanging the digits exceeds the given number by 18. Find the number.
34. Prove that If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio. Using theorem Find the value of x when $DE \parallel AB$

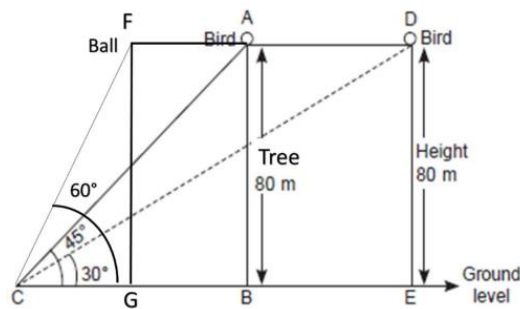


35. John and Jivanti together have 45 marbles. Both of them lost 5 marbles each, and the product of the number of marbles they now have is 124. Find out how many marbles each had to start with..

CASE STUDY

36. One evening, Kaushik was in a park. Children were playing cricket. Birds were singing on a nearby tree of height 80m. He observed a bird on the tree at an angle of elevation of 45° . When a sixer was hit, a ball flew through the tree frightening the bird to fly away. In 2 seconds, he observed the bird flying at the same height at an angle of elevation of 30° and the ball flying towards him at the same height at an angle of elevation of 60° .

(i) At what distance from the foot of the tree was he observing the bird sitting on the tree?



(ii) How far did the bird fly in the mentioned time? (or) After hitting the tree, how far did the ball travel in the sky when Kaushik saw the ball?

(iii) What is the speed of the bird in m/min if it had flown $20(\sqrt{3} + 1)$ m?

37. Mr. Dhawal Aggarwal is owner of famous amusement park Noida. The ticket charge for the park is Rs. 100 for children and Rs 150 for adult. One day he went to the cash counter and checked that 310 tickets were sold and Rs.40,000 was collected.



(i) Assuming that x number of children and y number of adults visited the park. Represent the given situations algebraically.

(ii) How many children visited the park? How many adults visited the park?

Or

One day total visited children and adults together is 750 and total amount collected is Rs 95,000. How many children and adults visited the park?

(iii) How much amount collected if 200 adults and 150 children visited the park?

38. Raj and Ajay are very close friends. Both the families decided to go to Ranikhet by their own cars Raj's car travels at a speed of x km/hr while Ajay's car travels 5km/hr faster than Raj's car. Raj took 4hrs more than Ajay to complete the journey of 400km.



- (i) Find the quadratic equation that describe the speed of Raj's car.
- (ii) What is the speed of Raj's car?
- (iii) How much time took Ajay to travel 400km

Or

How much time took Raj to travel half the journey?