Sample Paper 29

Class - 10th Exam - 2026 - 27

Mathematics - Basic

Time : 3 Hours **Max. Marks : 80**

General Instructions :

1. This question paper contains 38 questions.
2. This Question Paper is divided into 5 Sections A, B, C, D and E.
3. In Section A, Questions no. 1-18 are multiple choice questions (MCQs) and questions no. 19 and 20 are Assertion - Reason based questions of 1 mark each.
4. In Section B, Questions no. 21-25 are very short answer (VSA) type questions, carrying 02 marks each.
5. In Section C, Questions no. 26-31 are short answer (SA) type questions, carrying 03 marks each.
6. In Section D, Questions no. 32-35 are long answer (LA) type questions, carrying 05 marks each.
7. In Section E, Questions no. 36-38 are case study based questions carrying 4 marks each with sub parts of the values of 1, 1 and 2 marks each respectively.
8. All Questions are compulsory. However, an internal choice in 2 Question of Section B, 2 Questions of Section C and 2 Questions of Section D has been provided. An internal choice has been provided in all the 2 marks questions of Section E.
9. Draw neat and clean figures wherever required.
10. Take $\pi = \frac{22}{7}$ wherever required if not stated.
11. Use of calculators is not allowed.

SECTION - A

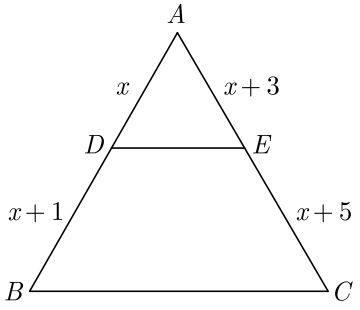
Section A consists of 20 questions of 1 mark each.

1. Which of the following cannot be the probability of an event?

(a) $\frac{1}{3}$ (b) 0.1

(c) 3% (d) $\frac{17}{16}$

2. In $\Delta ABC, DE || BC$, find the value of x.



(a) 3 (b) 2

(c) 4 (d) 1

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3. The zeroes of the polynomial $x^2 - 3x - m(m+3)$ are

(a) $m, m+3$ (b) $-m, m+3$

(c) $m, -(m+3)$ (d) $-m, -(m+3)$

4. The real roots of the equation $x^{2/3} + x^{1/3} - 2 = 0$ are

(a) $1, 8$ (b) $-1, -8$

(c) $-1, 8$ (d) $1, -8$

5. HCF of 144 and 198 is

(a) 9 (b) 18

(c) 6 (d) 12

6. x and y are 2 different digits. If the sum of the two digit numbers formed by using both the digits is a perfect square, then value of $x+y$ is

(a) 10 (b) 11

(c) 12 (d) 13

7. The times, in seconds, taken by 150 athletes to run a 110 m hurdle race are tabulated below

Class	Frequency
13.8-14	2
14-14.2	4
14.2-14.4	5
14.4-14.6	71
14.6-14.8	48
14.8-15	20

The number of athletes who completed the race in less than 14.6 second is :

(a) 11 (b) 71

(c) 82 (d) 130

8. If the sum of the first $2n$ terms of 2, 5, 8, ... is equal to the sum of the first n terms of 57, 59, 61, ..., then n is equal to

(a) 10 (b) 12

(c) 11 (d) 13

9. If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is

(a) 10 (b) -10

(c) -7 (d) -2

10. If $\cos(\alpha + \beta) = 0$, then $\sin(\alpha - \beta)$ can be reduced to

(a) $\cos\beta$ (b) $\cos 2\beta$

(c) $\sin\alpha$ (d) $\sin 2\alpha$

Continue on next page.....

11. The perimeters of two similar triangles are 25 cm and 15 cm respectively. If one side of the first triangle is 9 cm, then the corresponding side of second triangle is ..... .

(a) 5.4 cm (b) 5.2 cm

(c) 4.9 cm (d) 5.1 cm

12. Out of one digit prime numbers, one number is selected at random. The probability of selecting an even number is

(a) $\frac{1}{3}$ (b) $\frac{1}{4}$

(c) $\frac{3}{4}$ (d) $\frac{2}{3}$

13. The top of two poles of height 20 m and 14 m are connected by a wire. If the wire makes an angle of 30° with the horizontal, then find the length of the wire.

(a) 12 m (b) 20 m

(c) 8 m (d) 6 m

14. Distance of point $P(3, 4)$ from x-axis is

(a) 3 units (b) 4 units

(c) 5 units (d) 1 units

15. Two circles of radii 20 cm and 37 cm intersect in A and B. If O_1 and O_2 are their centres and $AB = 24$ cm, then the distance O_1O_2 is equal to

(a) 44 cm (b) 51 cm

(c) 40.5 cm (d) 45 cm

16. A 6 m high tree cast a 4 m long shadow. At the same time, a flag pole cast a shadow 50 m long. How long is the flag pole?

(a) 75 m (b) 100 m

(c) 150 m (d) 50 m

17. It is proposed to build a single circular park equal in area to the sum of areas of two circular parks of diameters 16 m and 12 m in a locality. The radius of the new park would be

(a) 10 m (b) 15 m

(c) 20 m (d) 24 m

18. If the radius of the sphere is increased by 100%, the volume of the corresponding sphere is increased by

(a) 200% (b) 500%

(c) 700% (d) 800%

19. **Assertion :** If the number of runs scored by 11 players of a cricket team of India are 5, 19, 42, 11, 50, 30, 21, 0, 52, 36, 27 then median is 30.

Reason : Median $= \left(\frac{n+1}{2}\right)^{\text{th}}$ value, if n is odd.

(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 but 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.

20. **Assertion :** If the height of a cone is 24 cm and diameter of the base is 14 cm, then the slant height of the cone is 15 cm.
Reason : If r be the radius and h be the slant height of the cone, then slant height $= \sqrt{h^2 + r^2}$.
(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 but 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.

SECTION - B

Section B consists of 5 questions of 2 marks each.

21. In a family of two children find the probability of having at least one girl.

22. If three points (0, 0), $(3, \sqrt{3})$ and $(3, \lambda)$ form an equilateral triangle, then what is the value of λ?

23. Write a rational number between $\sqrt{2}$ and $\sqrt{3}$.

24. Find the sum of first 16 terms of the AP 10, 6, 2, ...

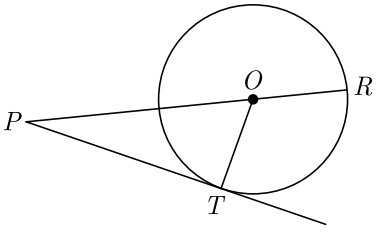
OR

What is the sum of five positive integer divisible by 6.

25. A chord of a circle of radius 10 cm, subtends a right angle at its centre. What is the length of the chord?

OR

In figure, on a circle of radius 7 cm, tangent PT is drawn from a point P such that $PT = 24$ cm. If O is the centre of the circle, then what is the length of PR ?



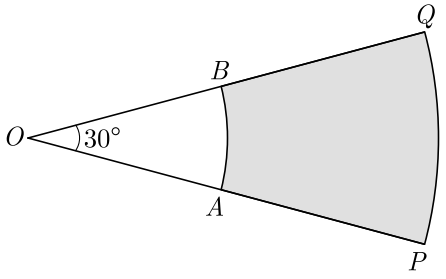
SECTION - C

Section C consists of 6 questions of 3 marks each.

26. If triangle ABC is similar to triangle DEF such that $2AB = DE$ and $BC = 8$ cm then find EF.

27. The length, breadth and height of a room are 8 m 50 cm, 6 m 25 cm and 4 m 75 cm respectively. Find the length of the longest rod that can measure the dimensions of the room exactly.

28. In Figure, PQ and AB are two arcs of concentric circles of radii 7 cm and 3.5 cm respectively, with centre O. If $\angle POQ = 30^\circ$, then find the area of shaded region.

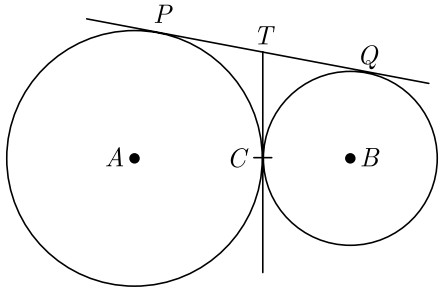


OR

A horse is tethered to one corner of a rectangular field of dimensions $70\,\text{m} \times 52\,\text{m}$, by a rope of length 21 m. How much area of the field can it graze?

29. If θ be an acute angle and $5\operatorname{cosec}\theta = 7$, then evaluate $\sin\theta + \cos^2\theta - 1$.

30. In given figure, two circles touch each other at the point C. Prove that the common tangent to the circles at C, bisects the common tangent at P and Q.



31. Two dice are tossed simultaneously. Find the probability of getting

(i) an even number on both dice.

(ii) the sum of two numbers more than 9.

OR

In a family of three children, find the probability of having at least two boys.

SECTION - D

Section D consists of 4 questions of 5 marks each.

32. If the mid-point of the line segment joining $A\left[\frac{x}{2}, \frac{y+1}{2}\right]$ and $B(x+1, y-3)$ is $C(5, -2)$, find x, y.

33. A milk tanker cylindrical in shape having diameter 2 m and length 4.2 m supplies milk to the two booths in the ratio of 3 ∶ 2. One of the milk booths has cuboidal vessel having base area 3.96 sq. m. and the other has a cylindrical vessel having radius 1 m. Find the level of milk in each of the vessels. Use $\pi = \frac{22}{7}$

34. Determine graphically whether the following pair of linear equations :

$$3x - y = 7$$

$$2x + 5y + 1 = 0 \text{ has :}$$

(a) unique solution

(b) infinitely many solutions or

(c) no solution.

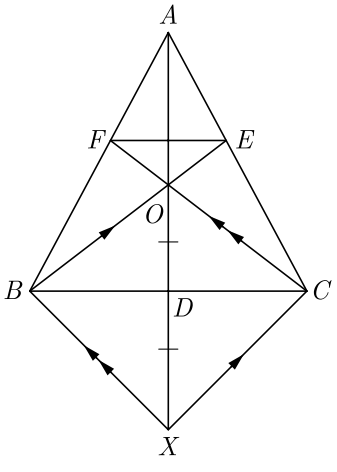
OR

For Uttarakhand flood victims two sections A and B of class contributed Rs. 1,500. If the contribution of X-A was Rs. 100 less than that of X-B, find graphically the amounts contributed by both the sections.

35. In $\Delta ABC, AD$ is a median and O is any point on AD. BO and CO on producing meet AC and AB at E and F respectively. Now AD is produced to X such that $OD = DX$ as shown in figure.
Prove that :

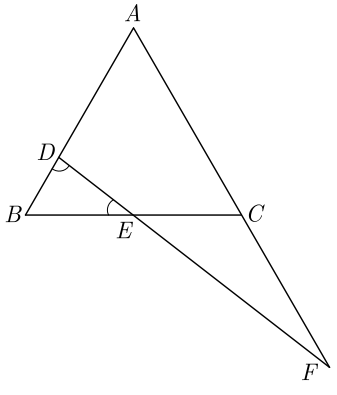
(i) $EF \,||\, BC$

(ii) $AO : AX = AF : AB$



OR

In the figure, $\angle BED = \angle BDE$ and E is the mid-point of BC. Prove that $\frac{AF}{CF} = \frac{AD}{BE}$.



SECTION - E

Section E consists of 3 case study based questions of 4 marks each.

36. Nidhi and Ria are very close friends. Nidhi's parents own a Maruti Alto. Ria's parents own a Toyota Liva. Both the families decide to go for a picnic to Somnath temple in Gujrat by their own cars.



Nidhi's car travels x km/h while Ria's car travels 5 km/h more than Nidhi's car. Nidhi's car took 4 hrs more than Ria's car in covering 400 km.

(i) What will be the distance covered by Ria's car in two hour? Write the quadratic equation that describe the speed of Nidhi's car?

(ii) What is the speed of Nidhi's car?

(iii) How much time did Ria take to travel 400 km?

(iv) How much time did Nidhi take to travel 400 km?

37. Transport department of a Jaipur wants to buy some Electric buses for the city. For which they wants to analyse the distance travelled by existing public transport buses in a day.



The following data shows the distance travelled by 60 existing public transport buses in a day.

Daily distance travelled (in km)	200-209	210-219	220-229	230-239	240-249
Number of buses	4	14	26	10	6

Base on the above information, answer the following questions.

(i) Find the median class of daily distance travelled ?

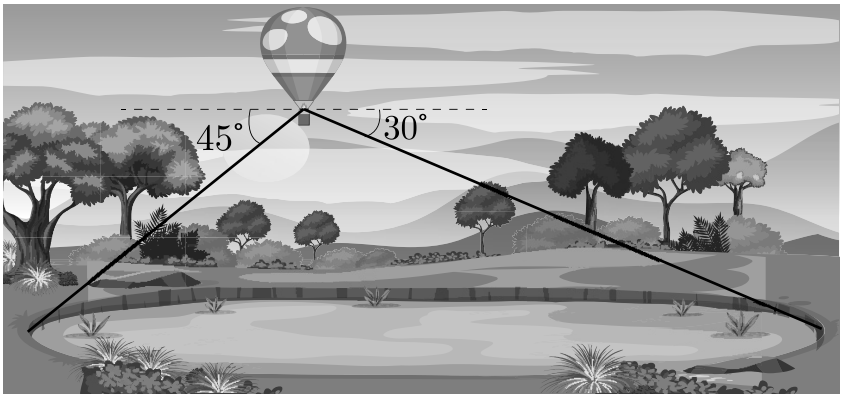
(ii) What is the cumulative frequency of the class preceding the median class ? Find the median of the distance travelled.

(iii) If the mode of the distance travelled is 223.78 km, find the mean of the distance travelled by the bus .

38. Width of a Lake : The angle of depression to one side of a lake, measured from a balloon 300 meter above the lake as shown in the accompanying figure, is 45°. The angle of depression to the opposite side of the lake is 30°.

(i) Find the width of the lake.

(ii) Find the ground distance of balloon from sides of lake.



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