

GUJARAT BOARD CLASS 9 TERM 2 MATHS SAMPLE PAPER- SET 1

Gujarat State Board Class IX Mathematics Sample Paper - 1

Time: 2 hrs

Total Marks: 60

General Instructions:

1. There are **30** objective type questions in this part and all are compulsory.
 2. The questions are serially numbered from **1** to **30** and each carries **1** mark.
 3. You are supplied with separate OMR sheet with the alternatives (A) (B) (C) (D) against each question number. For each question, select the correct alternative and darken the circle as completely with the pen against the alphabet corresponding to that alternative in the given OMR sheet.
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- From the following **1** to **30** questions, select the correct alternative from the given four answers and darken the circle with pen against the alphabet, against number in OMR sheet.
 - Each question carries **1** mark.
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Part-A

For each question, select the correct alternative from those given below each question to make the statement true: [1 mark each] 30

1.

44.7232323..... can be written as

- (A) $44.\overline{723}$
(B) $44.\overline{72}3$
(C) $44.\overline{72}3$
(D) $44.\overline{72}3$

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2. Set of all integers is denoted by

- (A) N
- (B) W
- (C) Z
- (D) Q

3.

- $(A \cap B)'$ =
- (A) $A \cup B'$
 - (B) $A' \cup B$
 - (C) $A \cup B$
 - (D) $A \cap B$

4.

Line $y = 4$

- (A) is parallel to the y-axis
- (B) intersects both the axes
- (C) is parallel to the x-axis
- (D) passes through the origin

5.

An angle is an union of

- (A) lines
- (B) line- segments
- (C) rays
- (D) a line segment and a ray

6.

If $p(3) = 0$, then a factor of $p(x)$ is

- (A) $(x - 3)$
- (B) $(x - 2)$
- (C) $(x + 3)$
- (D) $(x + 2)$

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7.

If two angles forming a linear pair have measures $(6y + 30)^\circ$ and $4y^\circ$ then $y =$ ____

- (A) 30
- (B) 15
- (C) 60
- (D) 90

8.

If $a - b = 2$ and $ab = 3$, then $a^3 - b^3 =$

- (A) 8
- (B) 27
- (C) 26
- (D) 6

9.

Which of the following need proof?

- (A) Axioms
- (B) Postulates
- (C) Definitions
- (D) Theorems

10.

The number of dimensions a surface has is

- (A) 3
- (B) 1
- (C) 0
- (D) 2

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11. If two lines cannot lie in the same plane, they are called _____ lines.

- (A) disjoint
- (B) skew
- (C) parallel
- (D) coplanar

12. If \overrightarrow{AB} and \overrightarrow{AC} are opposite rays, then $\overrightarrow{AB} \cap \overrightarrow{AC} =$

- (A) $\{A\}$
- (B) \overrightarrow{AC}
- (C) \overrightarrow{AB}
- (D) \emptyset

13.

The decimal expansion of $\frac{7}{4}$ is _____.

- (A) terminating
- (B) non terminating and recurring
- (C) non-terminating and non-recurring
- (D) infinite

14.

For the correspondence $BAC \leftrightarrow YXZ$ between ΔABC and ΔXYZ , ____ corresponds to $\angle Z$.

- (A) $\angle B$
- (B) $\angle A$
- (C) $\angle C$
- (D) $\angle Y$

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15.

The graph of the equation _____ is a line parallel to the y-axis.

- (A) $x - 3 = 0$
- (B) $x - y = 1$
- (C) $y = 1$
- (D) $x + y = 1$

16.

$$\sqrt{9} =$$

- (A) 3
- (B) - 3
- (C) 3 and -3
- (D) All (A), (B), (C) are true.

17.

The point of intersection of the axes has co-ordinates _____ .

- (A) (0, 1)
- (B) (1, 0)
- (C) (0, 0)
- (D) (0, -1)

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18. $\sqrt{2}$ belongs to

- (A) the set of whole numbers
- (B) the set of real numbers
- (C) the set of irrational numbers
- (D) the set of natural numbers

19. $(4x - 7y)^3 =$

- (A) $4x^3 - 7y^3 + 84xy$
- (B) $16x^3 + 49y^3 + 84xy$
- (C) $64x^3 - 343y^3 - 336x^2y + 588xy^2$
- (D) $64x^3 - 343y^3 + 336x^2y - 588xy^2$

20.

For the origin O, abscissa and ordinate are both

- (A) 1
- (B) -1
- (C) 0
- (D) 0.5

21.

If $A = \{1, 2, 3\}$, $B = \{3, 4, 5\}$ then $A \cup B =$

- (A) $\{1, 2, 3, 4, 5\}$
- (B) $\{3\}$
- (C) $\{1, 2\}$
- (D) \emptyset

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22.

The complementary angle of an angle having measure $(x + 30)^\circ$ has measure _____ . $(x < 60^\circ)$

- (A) $60 + x$
- (B) $-(x - 60)$
- (C) $x - 60$
- (D) $-60 - x$

23.

. The three steps from Solid to Point are

- (A) Solid - Surface - Line - Point
- (B) Solid - Line - Surface - Point
- (C) Surface - Point - Line - Solid
- (D) Point - Surface - Line - Solid

24.

For the origin O, abscissa and ordinate are both

- (A) 1
- (B) -1
- (C) 0
- (D) 0.5

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25. From the following which condition is not possible for the congruence of two triangles?
- (A) ASA
 - (B) AAS
 - (C) SSS
 - (D) AAA
26. If $X - Y - Z$, then $\overline{XZ} =$
- (A) \overline{YZ}
 - (B) \overline{ZX}
 - (C) \overline{XY}
 - (D) \overline{YX}
27. If $PQ = 9$ and $RS = 9$, then
- (A) $\overline{PQ} \cong \overline{RS}$
 - (B) $\overline{PQ} = \overline{RS}$
 - (C) $\overline{PQ} \cong \overline{RS}$
 - (D) $PQ \cong RS$
28. The zero of $7x - 3$ is
- (A) $\frac{-3}{7}$
 - (B) $\frac{3}{7}$
 - (C) $\frac{7}{3}$
 - (D) $\frac{-7}{3}$
29. If one of the factors of the polynomial $x^3 + 4x^2 - 3x - 18$ is $x + 3$, then the other factor is
- (A) $x^2 + x$
 - (B) $x^2 + x + 6$
 - (C) $x^2 + x - 6$
 - (D) $x^2 - x + 6$
30. For $\triangle ABC$, the side opposite to $\angle A$ is ____ .
- (A) \overline{AB}
 - (B) \overline{BC}
 - (C) \overline{CA}
 - (D) None of these

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Part-B

General Instructions:

1. There are three sections in this part with questions from 1 to 11.
 2. All the questions are compulsory. Internal options are given.
 3. Draw figures wherever required. Retain all the lines of construction.
 4. The numbers on the right side represent the marks of the question.
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SECTION A

Solve the following briefly: [2 marks each]

1.

Find the possible values of a.

$$|a - 4| = 5$$

2.

In $\triangle ABC$, $AB \cong AC$, if $m\angle A = \frac{m\angle B}{2} = \frac{m\angle C}{3}$, then find the measures of all the angles of $\triangle ABC$.

OR

In the correspondence $DEF \leftrightarrow PQR$ is congruence, hence mention the congruent sides and angles of $\triangle DEF$ and $\triangle PQR$.

3.

Plot the following points on a graph paper:

$(3, -2)$ and $(-5, 4)$

4.

Simplify.

$$(\sqrt{15} - \sqrt{5})^2$$

OR

Rationalise the denominator and simplify the following:

$$\frac{3\sqrt{2} - \sqrt{5}}{3\sqrt{3} + 2\sqrt{2}}$$

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5.

Verify whether 3 and 0 are the zeroes of $p(x) = x^3 - x$.

SECTION B

Solve the following: [3 marks each]

6. In $\triangle ABC$, if $\overline{AB} \cong \overline{AC}$, \overline{BD} is the angle bisector of $\angle B$ such that $m\angle ABD = 40^\circ$, then find the measures of all the angles of $\triangle ABC$.

7. If $a + b + c = 6$ and $a^2 + b^2 + c^2 = 60$, then find $ab + bc + ca$ and $a^3 + b^3 + c^3 - 3abc$.

8. Prove that

$$(\sqrt{x} + 1)(\sqrt[4]{x} + 1) \cdot (\sqrt[8]{x} + 1)(\sqrt[8]{x} - 1) = x - 1. \quad (x \in \mathbb{R}^+)$$

9. If $A = \{1, 2, 3\}$ and $B = \{3, 4, 6\}$, then find all possible non-empty sets X which satisfy the following conditions:

- $x \subset A, x \not\subset B$
- $x \subset B, x \not\subset A$
- $x \subset A, x \subset B$

OR

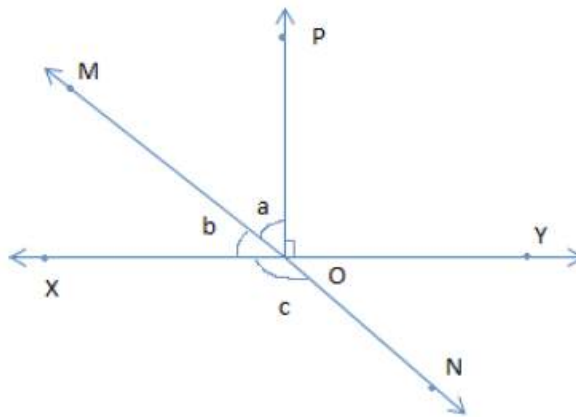
If $U = \{x \mid x \in \mathbb{N}, (x + 1)^2 < 40\}$, $A = \{x \mid x \in \mathbb{N}, x < 4\}$, $B = \{2x \mid x \in \mathbb{N}, x < 3\}$, then find A' , B' .

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SECTION C

Solve the following: [4 marks each]

10. In the figure given below. \overline{XY} and \overline{MN} intersect at O. $m\angle MOP = a$, $m\angle MOX = b$, $m\angle NOX = c$. If $m\angle POY = 90^\circ$ and $a : b = 2 : 3$, find c.



11. Examine whether the following expressions are linear equations in two variables or not.

(A) $\frac{7}{3}x + \frac{5}{2}y + \frac{1}{2} = 0$

(B) $\frac{x}{2} + \frac{y}{2} = 3$

OR

Draw the graph of the following linear equations in two variables:

(A) $3y = 6$

(B) $5x + 10 = 0$