ADRIEL HIGH SCHOOL
Session-2025-2026
Class IX- Maths Worksheet
POLYNOMIAL & COORDINATE GEOMETRY

Multiple Choice Questions

Q 1. Which one is not a polynomial?

a. $4x^2 + 2x - 1$ b. $y + \frac{3}{y}$

c. $x^3 - 1$ d. $y^2 + 5y + 1$

Q 2. Which of the following algebraic expression is a polynomial in variable x?

a. $x^2 + \frac{2}{x^2}$ b. $\sqrt{x} + 1$

c. $x^3 + \frac{3x^{3/2}}{\sqrt{x}}$ d. $x^{-2} + x^{-1} + 5$

Q 3. The polynomial $px^2 + qx + rx^4 + 5$ is of type:

a. linear b. quadratic

c. cubic d. biquadratic

Q 4. The polynomial of type $p(x) = ax^2 + bx + c, a = 0$ is:

a. linear b. quadratic

c. cubic d. biquadratic

Q 5. Classification of the polynomial $3x^4 + 2x$ is:

a. monomial b. binomial

c. trinomial d. All of these

Q 6. The zero of the polynomial $p(x) = 2x + 5$ is:

a. 2 b. 5

c. $\frac{2}{5}$ d. $-\frac{5}{2}$

Q 7. The zeroes of the polynomial $p(x) = 3x^2 - 1$ are:

a. $\frac{1}{3}$ and 3 b. $\frac{1}{\sqrt{3}}$ and $\sqrt{3}$

c. $\frac{-1}{\sqrt{3}}$ and $\sqrt{3}$ d. $\frac{1}{\sqrt{3}}$ and $\frac{-1}{\sqrt{3}}$

Q 8. If $p(y) = 4 + 3y - y^2 + 5y^3$, then value of $p(-1)$ is:

a. –5 b. –9

c. 0 d. –6

Q 9. The number of zeroes in $x^2 + 4x + 4$ is:

a. 1 b. 2

c. 3 d. None of these

Q 10. If $p(x) = x + 3$, then $p(x) + p(-x)$ is equal to:

a. 3 b. $2x$ c. 0 d. 6

Q 11. The degree of polynomial $p(x) = x + \sqrt{x^2} + 1$ is:

a. 0 b. 2 c. 1 d. 3

Q 12. The remainder when $x^3 - 2x^2 + 3x + 2$ is divided by $x - 1$, is:

a. 4 b. – 4

c. 3 d. – 3

Q 13. If $x^{21} - 15$ is divided by $(x + 1)$, then remainder is:

a. -14 b. -16
c. -15 d. 17

Q 14. If $(x - 2)$ is a factor of $x^3 - 2x^2 + p$, then the value of p is:

a. -1 b. 1
c. -2 d. 0

Q 15. If $49x^2 - b = \left(7x + \frac{1}{2}\right)\left(7x - \frac{1}{2}\right)$, then the value of b is:

a. 0 b. $\frac{1}{\sqrt{2}}$

c. $\frac{1}{4}$ d. $\frac{1}{2}$

Q 16. The value of $5.63 \times 5.63 + 11.26 \times 2.37 + 2.37 \times 2.37$ is:

a. 237 b. 126
c. 56 d. 64

Q 17. If $x + y = 3$, $x^2 + y^2 = 5$, then xy is:

a. 1 b. 3 c. 2 d. 5

Q 18. The coefficient of x in the expansion of $(x + 3)^3$ is:

a. 1 b. 9 c. 18 d. 27

Q 19. The value of $\frac{(361)^3 + (139)^3}{(361)^2 - 361 \times 139 + (139)^2}$ is:

a. 300 b. 500
c. 400 d. 600

Q 20. Factors of $x^4 - x^2 - 12$ are:

a. $(x + 2)$, $(x - 2)$, $(x^2 + 3)$
b. $(x + 3)$, $(x - 3)$, $(x^2 + 2)$
c. $(x^2 + 2)$, $(x^2 - 6)$
d. $(x + 2)$, $(x - 2)$, $(x^2 - 3)$

Q 21. Factorisation of $x^2 + 3\sqrt{2}x + 4$ is:

a. $(x + 2\sqrt{2})(x + \sqrt{2})$ b. $(x + 2\sqrt{2})(x - \sqrt{2})$

c. $(x - 2\sqrt{2})(x + \sqrt{2})$ d. $(x - 2\sqrt{2})(x - \sqrt{2})$

Q 22. One of the dimensions of the cuboid whose volume is $16x^2 - 26x + 10$, is:

a. $(x - 1)$ b. 2
c. $(8x - 5)$ d. All of these

Q 23. Factors of $(a + b)^3 - (a - b)^3$ are:

a. ab, $3a^2 + b^2$ b. $(3a^2 + b^2)$, $2a$
c. $2b$, $(3a^2 + b^2)$ d. $(3a^2 + b^2)$, $2ab$

Q 24. If $3x - 2y + z = 0$, then the value of $27x^3 - 8y^3 + z^3$ is:

a. $-6xyz$ b. $-18xyz$
c. $18xyz$ d. $6xyz$

Assertion & Reason Type Questions

Directions (Q. Nos. 25-29): *In the following questions, a statement of Assertion (A) is followed by a statement of a 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 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.

Q 25. **Assertion (A): The expression $3x^4 - 4x^{3/2} + x^2 = 2$ is not a polynomial because the term $-4x^{3/2}$ contains a rational power of x.**

Reason (R): The highest exponent in various terms of an algebraic expression in one variable is called its degree.

Q 26. **Assertion (A): The degree of the polynomial $(x - 2)(x - 3)(x + 4)$ is 4.**

Reason (R): The number of zeroes of a polynomial is the degree of that polynomial.

Q 27. **Assertion (A): If $p(x) = x^2 - 4x + 3$, then 3 and 1 are the zeroes of the polynomial $p(x)$.**

Reason (R): Number of zeroes of a polynomial cannot exceed its degree.

Q 28. **Assertion (A): The remainder when $p(x) = x^3 - 2x^2 + 3x$ is divided by $(2x - 1)$ is $\frac{9}{8}$.**

Reason (R): If a polynomial $p(x)$ is divided by $ax - b$, the remainder is the value of $p(x)$ at $x = \frac{b}{a}$.

Q 29. **Assertion (A): Factorisation of the polynomial $\sqrt{3}x^2 + 11x + 6\sqrt{3}$ is $(\sqrt{3}x + 2)(x + \sqrt{3})$.**

Reason (R): Factorisation of the polynomial $35y^2 + 13y - 12$ is $(7y - 3)(5y + 4)$.

Fill in the Blanks Type Questions

Q 30. Every real number is a ..... of the zero polynomial.

Q 31. A polynomial of degree 3 in x has at most ..... terms.

Q 32. The quotient of $8x^3 - 5x^2 + 2x$, when divided by $2x$ is ..... .

Q 33. If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of k is ..... .

Q 34. If $\frac{x}{y} + \frac{y}{x} = -1$, where $x, y \neq 0$, then the value of $(x^3 - y^3)$ is .....

Multiple Choice Questions

Q 1. The point which lies on Y-axis at a distance of 4 units in the negative direction of Y-axis is:
a. (0, 4) b. (4, 0)
c. (0, – 4) d. (– 4, 0)

Q 2. Which point lies on X-axis?
a. (3, 2) b. (–3, 2)
c. (2, 0) d. (–1, –2)

Q 3. Which point lies on Y-axis?
a. (1, 3) b. (0, 3)
c. (5, 2) d. (–2, –3)

Q 4. Which point lies to the right of Y-axis?
a. (0, 3) b. (–2, –1)
c. (3, 5) d. (–3, –2)

Q 5. The perpendicular distance of the point P(2, 5) from the Y-axis is:
a. 5 b. 2 c. 3 d. 4

Q 6. Which point lies on the left of Y-axis?
a. (2, 0) b. (–2, –4)
c. (5, 2) d. (3, 6)

Q 7. Which point lies above X-axis?
a. (–1, 2) b. (2, 0) c. (–1, –5) d. (0, –3)

Q 8. If the coordinates of two points are P(–2, 3) and Q(–3, 5), then (abscissa of P) – (abscissa of Q) is:
a. –5 b. 1 c. –1 d. –2

Q 9. The ordinate of a point is negative in:
a. II and III quadrants
b. III quadrant only
c. III and IV quadrants
d. IV quadrant only

Q 10. Which point lies in IV quadrant?
a. (–3, –4) b. (2, –4)
c. (–2, 3) d. (0, 1)

Q 11. If $(x + 3, 5) = (6, y - 3)$, then coordinates (x, y) are:
a. (– 3, 2) b. (– 3, 8)
c. (– 3, – 8) d. (3, 8)

Q 12. If the points P(0, – 2), Q(0, 4) and R(a – 5, 6) are lie on Y-axis, then the value of a is:
a. – 5 b. 5 c. 6 d. 4

Q 13. The coordinates of any point on the Y-axis are of the form $(0, k)$, where $|k|$ is distance of the point from the :
a. X-axis b. Y-axis
c. (0, 1) d. (0, 5)

Q 14. The distance of the points (0, 3) and (0, – 5) from Y-axis is:
a. 8 b. 3 c. – 5 d. 0

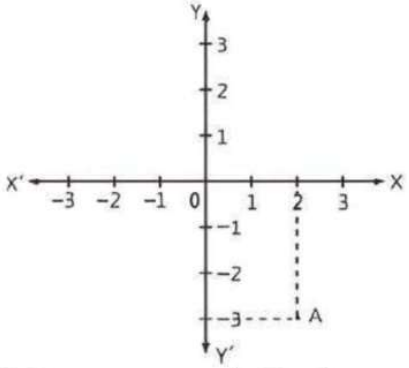
Q 15. The distance between the points A(3, 5) and B(– 8, 5) is:
a. 11 b. 5 c. 10 d. 12

Q 16. The image of point (–3, 4) with respect to X-axis is:
a. (–3, –4) b. (3, 4)
c. (–3, 0) d. (3, –4)

Q 17. The image of a point P(– 8, 5) with respect to the Y-axis is:
a. (– 8, 5) b. (8, 5)
c. (– 8, 0) d. (0, 5)

Q 18. Which of the points P(–1,1), Q (3,–4), R(1,–1), S(–2,–3) and T(–4, 4) lie in the IV quadrants?
a. P and T b. Q and R
c. only S d. P and R

Q 19. In the following graph, the coordinates of A are:



a. (2, 3) b. (2, – 3)
c. (– 2, 3) d. (– 2, – 3)

Assertion & Reason Type Questions

Directions (Q. Nos. 20-23): *In the following questions, a statement of Assertion (A) is followed by a statement of a 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 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.

Q 20. **Assertion (A): The point (–3, 0) lies on Y-axis and (0, 4) lies on X-axis.**
Reason (R): Every point on the X-axis has zero distance from X-axis and every point on the Y-axis has zero distance from Y-axis.

Multiple Choice Questions

Q 1. Which point lies to the right side of Y-axis?

a. (0, 5) b. (– 3, 5) c. (4, 7) d. (– 4, – 4)

Q 2. Which point lies in III quadrant?

a. (3, 5) b. (– 3, – 5) c. (4, – 5) d. (– 3, 5)

Assertion and Reason Type Questions

Directions (Q. Nos. 3-4) *In the following questions, 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 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.

Q 3. Assertion (A): The abscissa of a point (– 2, 5) is – 2.
Reason (R): The perpendicular distance of a point from Y-axis is said to be an abscissa.

Q 4. Assertion (A): A point whose abscissa is 4 and ordinate is – 7 lies in IV quadrant.
Reason (R): A point whose sign is the form of (–, +) lies in III quadrant.

Fill in the Blanks

Q 5. If the abscissa is zero and the ordinate is negative, then that point lies on ..... .

Q 6. The distance of the point (– 3, 8) from X-axis is ..... .

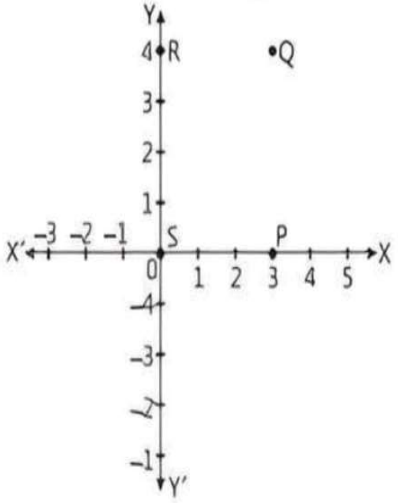
True/False

Q 7. Ordinate of all the points on the Y-axis is any number.

Q 8. The distance of the point (7, 0) from X-axis is 7 units.

Case Study Based Question

Q 9. The diagram shows the position of three electric poles P, Q and R were installed in a school park. Instead of them, some parts of the park was not lightning. So, the management of the school decided to install one more pole at point S in such a way that it forms a rectangle and lightened the maximum area of the park.



NOTE : ALL QUESTIONS ARE COMPULSORY . DO ALL QUESTIONS IN SEPARATE A4 SHEETS.

On the basis of the above information, solve the following questions:

(i) What is the ordinate of the location of pole Q?

(ii) Find the distance between the poles Q and S.

OR

Find the area covers by all four poles.

(iii) Write the coordinates of the pole S to be installed.

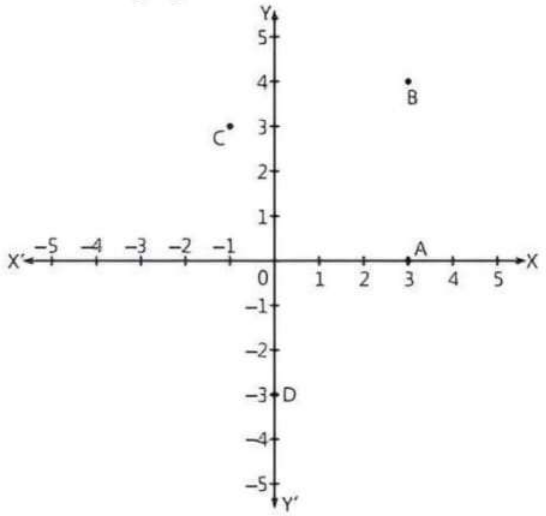
Very Short Answer Type Questions

Q 10. Find the reflection of the point $(-5, 4)$ in Y-axis.

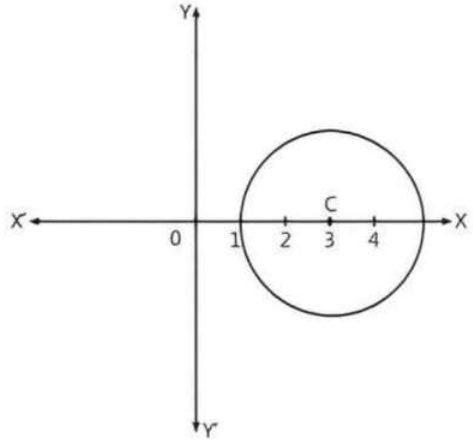
Q 11. Write the abscissa of the following points A(4, 6), B(5, 7), C(7, 3).

Short Answer Type-I Questions

Q 12. Write the coordinates of A, B, C and D of the following figure.

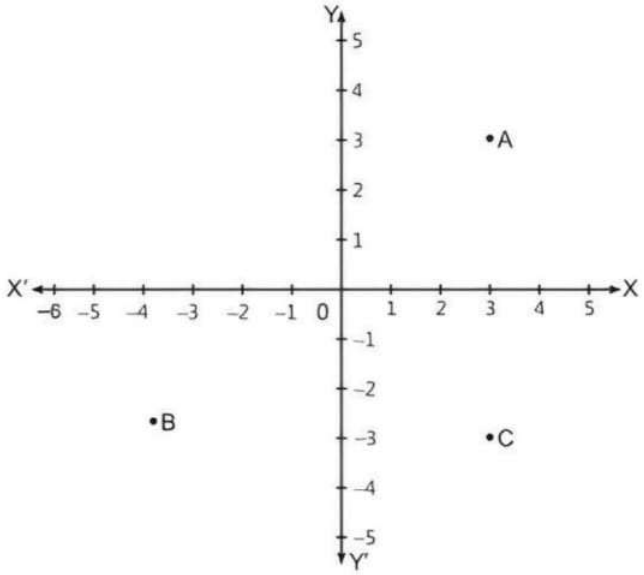


Q 13. Write the coordinate of centre of circle. Also, find the area of circle.

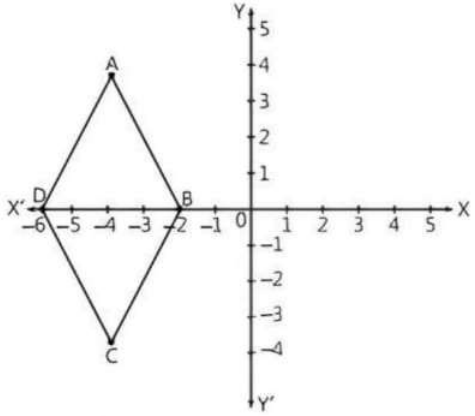


Short Answer Type-II Questions

Q 14. Write the coordinates of vertices of a figure. Determine the area of the figure.



Q 15. Write the coordinates of the vertices of a figure. Also, name the type of quadrilateral and find its area.



Long Answer Type Question

Q 16. Write the coordinates of vertices of given figure and find the coordinates of the point of intersection of the diagonals. Also, find the area of the figure.