Brain International School
Vikas Puri, New Delhi

Assignment – 1

Subject: Mathematics **Class: X** **April/May 2026**

Chapter 1: Coordinate Geometry

Q1. The area of triangle OAB with points 0(0,0), A(4,0) & B(0,6) is

(a) 24 sq. units (b) 12 sq. units (c) 8 sq. unit (d) 16 sq. units

Q2) The perpendicular distance of the point P(3, 4) from the Y-axis is

(a) 3 (b) 5 (c) 4 (d) 7

Q3) The Point lying on the Y-axis at a distance of 5 units and in the negative direction of Y-axis is

(a) (0,5) (b) (-5,0) (c) (0,-5) (d) (5,0)

Q4) If the perpendicular distance of the given point P from the x-axis is 5 units and the foot of the perpendicular lies in the negative direction of the x-axis, then the point P has

(a) y – coordinate = – 5 only (b)y – coordinate = 5 only

(c) x – coordinate = – 5 (d)y – coordinate = 5 or –5

Q5)Which of the following points P(0, 3), Q(l, 0), R(0, – 1), S(-5, 0) and T(1, 2) does not lie on the X-axis?

(a) Q, S and T (b)Q and S only (c)P, R and T (d)P and R only

Q6) Predict whether the given statements are True / False? Give justification for your answer.

(i) Point (3, 0) lying in the first quadrant.

(ii) Points (1, –1) and (–1, 1) lying in the same quadrant.

(iii) The coordinates of a point whose ordinate is – ½ and abscissa is 1 are (– ½ , 1).

(iv) A point lying on the y-axis at 2 units distance from the x-axis. Its coordinates are (2, 0).

Q7)Plot the following points and check whether they are collinear or not:

(1, 3), (– 1, – 1), (– 2, – 3)

Q8)Points A (5, 3), B (–2, 3) and D (5, –4) are three vertices of a square ABCD. Plot these points on a graph paper and hence find the coordinates of the vertex C.

Q9) Find the possible coordinates of the Point

(i) which lies both on X and Y-axes .

(ii) whose ordinate is – 4 and lies on the Y-axis.

(iii) whose abscissa is 5 and lies on the X-axis.

Q10)

The point on y-axis equidistant from the points A(1, 3) and B(4, 4) is

(A) (0, 11)
(B) (11, 0)
(C) (0, 13)
(D) (0, 12)

Q11)

If point (1, 2) divides the line segment joining the points (3, 5) and (2p, q) in the ratio 1 : 1, then (p, q) is equal to :

(A) $\left(-\frac{1}{2}, -1\right)$
(B) $\left(-\frac{1}{2}, -\frac{1}{2}\right)$
(C) $(-1, -1)$
(D) $\left(-1, -\frac{1}{2}\right)$

Q12)

The points (– 5, 0), (5, 0) and (0, 4) are the vertices of a triangle which is a/an :

(A) right-angled triangle
(B) isosceles triangle
(C) equilateral triangle
(D) scalene triangle

Q13.

The coordinates of the end points of a diameter of a circle are $(5, -2)$ and $(5, 2)$. The length of the radius of the circle is :

(A) ± 2 (B) ± 4

(C) 4 (D) 2

Q14) If (1,2), (4,y),(x,6) and (3,5) are the vertices of a parallelogram taken in order, find x and y.

Q15)If (a/2,4) is the mid point of the line segment joining the points A(-6,5) and B (-2,3) then find the value of a.

Chapter 2: Introduction to Polynomials

Q1 Classify the following as constant, linear, quadratic, cubic and biquadratic polynomial**(**quartic) polynomials .

i) $x - x^3$

ii) $y^4 - y$

iii) $y + y^2 + 4$

iv) $\sqrt{2}x - 1$

v) $(2x - 5)(2x^2 - 3x + 1)$

vi) 77

Q2 For the polynomial p(x)= $\frac{x^3+2x^2+3x}{x} + 4x^6 + 2x + 8$, find the

i) The degree of the polynomial

ii) The coefficient of x

iii) The constant term

iv) The coefficient of x^2

Q3 Which of the following expression are polynomial? In case of a polynomial, write its degree.

i) $x^5 - 2x^3 + x + \sqrt{3}$

ii) $y^3 + \sqrt{3y^2}$

iii) $\frac{x^{\frac{3}{2}}}{\sqrt{x}} + 9x^2 - 1$

iv) $x^{-2} + 2x + 3$

v) $x^4 - x^{\frac{3}{2}} + x - 3$

vi) $\frac{x-x^3}{x}$

vii) $\frac{x+1}{x+2}$

Q4. Write each of the following equations in the form of ax + by + c=0 and indicate the values of a, b ,c in each case .

i) 3=2x+y

ii) 3x-8=5y

iii) X=4y

iv) $\frac{x}{3} - \frac{y}{2} = 5$

v) $4y - 3 = \sqrt{2}x$

vi) $\pi x + y = 6$

vii) $\frac{x}{2} - \frac{y}{3} = \frac{1}{6} + y$

viii) $3x - y = x - 1$

Q5.Write each of the following as an equation in two variables:

(i) X = 6 (ii) 4y = -9 (iii) $43 = -\frac{2}{3}x$

Q6.Express the following statements in linear equations in two variables:

(i) The cost of a ball pen is ₹ 5, less than half of the cost of a fountain pen.

(ii) A three-wheeler scooter charges ₹15 for the first kilometre and ₹ 8 each for every subsequent kilometre. For a distance of x km, an amount of ₹ y is paid.

(iii) A lending library has a fixed charge for the first three days and an additional charge for each day thereafter. Aarushi paid ₹ 27 for a book kept for seven days. If fixed charges are ₹ x and per day charges are ₹ y.

(iv) Iam four times as old as my daughter.

Q7. If the points A(3,5) and B(1,4) lies on the graph of line ax + by=7 , find the value of a .

Q8. If the graph of equation $2x + ky = 10k$ intersect x-axis at point (5,0) find the value of K.

Q4 If $x = 3k + 2$ and $y = 2k - 1$ is a solution of the equation $4x - 3y = -1$ find the value of k.

Q5 Find five different solution of each of following equations:

i) $2x - 3y = 6$

ii) $\frac{2x}{5} + \frac{3y}{10} = 3$

iii) $3y = 4x$

Q6. Find out the coordinate of the points where the graph of linear equation 2x +3y = 6 intersect the x-axis and y – axis .

Q7. Given the point (-2, 9), find the equation of a line on which it lies. How many such equations are there.

Q8. Draw the graph of the equation 2x + 5y = 10. At what point the graph cut the X axis and Y axis.

Q9. Write a linear equation such that each point on its graph has ordinate 5 times its abscissa.

Q10.Draw the graphs of the equations x + y – 10 = 0 and x – y + 4 = 0 on the same graph paper and find the coordinates of their point of intersection.

Q11. Find the slope of a line passing through the points A (-2, -3) and B (2, 5)

Q12. The equation of a line is 2

(a) $x - 2\sqrt{3}y - \sqrt{3} = 0$. (b) $-4x + 5/3\ y = -\sqrt{3}$

Find

(i) The slope of the line (ii) y intercept of the line

Q13. Find the equation of a line :

(a)whose slope is 4/3 and y intercept is -6

(b) whose slope is $-\sqrt{3}$ and y intercept is -2/3

Chapter 3: Number Systems

Q1. Compare the rational numbers:

(i) 7/4 and 2/3 (ii) 5/-12 and -3/8

Q2. Arrange in descending order

(i) -5/4 , -5/8 , -5/12

(ii) -3/7, 5/-4, 11/-14

(iii) ¾, -5/6,7/8

Q3. Represent each of the following in separate number lines

(i) -3/2 (ii) -4/5 (iii) 3/9 (iv) 7/4

Q4.Verify that (x + y) + z = x + (y +z) by taking x= 2/3, y = ¾ , z = 4/5
Also state the property used.

Q5. Find three rational numbers between 1/3 and ½

Q6. Write the following rational numbers in the decimal form:

(i) 1/3 (ii) 5/16 (iii) 17/9

Q7. Express the following into p/q form:

i) $0 \cdot 333 \ldots$

ii) $0 \cdot 57575757 \ldots$

iii) $2 \cdot 4178178178178178 \ldots\ldots$

Q8. Write two irrational numbers whose sum and product both are rationals.Justify

Q9. Examine whether the following are rational or irrational numbers.

i) $3 + \sqrt{3}$ ii) $(5)^{\frac{1}{3}}(25)^{\frac{1}{3}}$ iii) $\sqrt{7} \times \sqrt{343}$ iv) $\sqrt{\frac{13}{117}}$ v) $\sqrt{8} \times \sqrt{2}$

vi) 9.121212 ... vii) $\frac{11}{9}$ viii) 4.213689156 ix) π x) $5 + 2\sqrt{23} - \sqrt{25} - \sqrt{92}$

Q10.Simplify:

$(3+ \sqrt{2})\ (3 - \sqrt{2})$ **(ii) $(4 + \sqrt{8})(5 - \sqrt{5})$**

Q11. Prove that $\sqrt{3}$ is an irrational number.

Q12. Prove that $3 + \sqrt{3}$ is an irrational number.

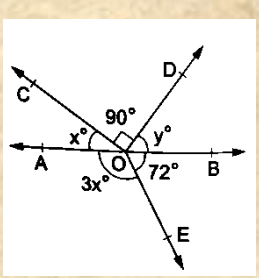
Chapter 5: Lines and Angles

Q1 Find the measure of angle which is 24^omore than its complement.

Q2 Two supplementary angles are in the ratio of 3:2. Find the angles

Q3 The supplement of an angle is one-third of the given angle. Find the measure of the given angle and its supplement.

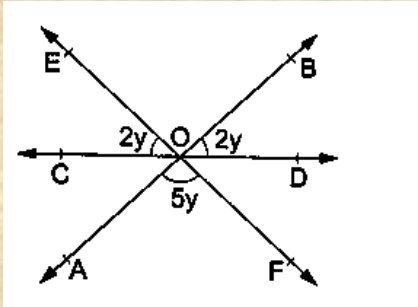
Q4 Find the value of x for which the angles $(2x - 5)^0$ and $(x - 10)^0$ are the complementary angles.



Q5 Find the angle whose supplement is four times its complement.

Q6 Calculate $\angle AOC, \angle BOC, and\ \angle AOE$ in the adjoining figure it is being given that $\angle COD = 90°$, $\angle BOE = 72°$ and AOB is a straight line.

Q7 In the given figure, AB , CD and EF are the three lines concurrent at O. Find the value of y.



Q8 Find the values of x and Y

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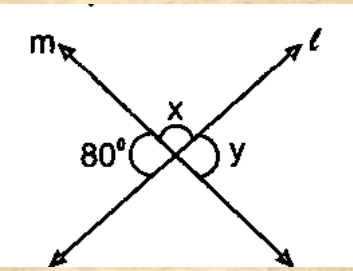
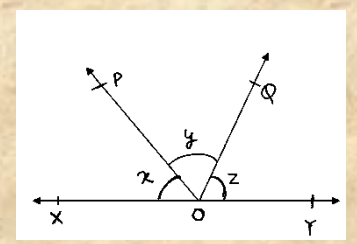


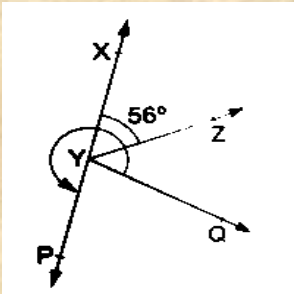


Q9 In the adjoining figure x:y:z= 5:4:6 . If XOY is a straight line , find the value of x , y and z .

Q10. If two staright lines intersect each other in such a way that one of the angle formed is of 90^0 .Show that each of the remaining angles measure 90^0.

Q11. Two adjacent angles on a straight line are in the ratio 5:4 . Find the measure of each of these angles .

Q12. In the given figure , $\angle XYZ = 56^0$ and XY is produced to a point P. If ray YQ bisects $\angle ZYP$,find the measure of $\angle XYQ$ and reflex $\angle\ QYP$.



Q13. AB and CD are intersecting lines. OD is bisector of $\angle BOY$. Find x