X. Maths. HOME - ASSIGNMENT. Co-ordinate Geometry

I. Find the distance b/n the points:

(i) P (7,5) and Q (2,5).

ii) A (4,10) and B (7,-6)

iii) R (3,4) and S (7,7)

iv) X (-6,7) and Y (-1,-5)

v) H (2,2) and J (6,5)

vi) A (7,-4) & B (-5,1)

vii) E (2,3) & F (+4,1) &

viii) G (-5,7) & H (-1,3)

ix) A (1,7) & B (4,2)

x) A (1,2) & B (5,4)

II. 1) Find the distance of (4,-3) from its origin.

2. Find the values of 'y' for which distance b/n the points p (2,-3) and Q (10, y) is 10 units.

3. Find the values of 'x' for which the distance b/n (x,7) and (-1,-5) is 13 units.

4. check whether (5,-2), (6,4) & (7,-2) are the vertices of an isosceles triangle.

5) p.t. the points (6,9), (0,1) & (-6,-7) are collinear.

6) Determine if the points (1,5), (2,3) & (-2,-11) are collinear.

7) p.t. points (3,-3), (5,-1) & (3,-1) are the vertices of an isosceles triangle.

8) using the distance formula, s.t. the points (4,3), (5,1) & (1,9) are collinear.

9) Find the lengths of the sides of the triangle whose vertices are A(3,4), B(2,-1) and C(4,-6)

10) Find the coordinate of the points dividing the line segment joining the following pairs of points internally in the given ratio:

i) (-3,1), (3,-2) in 2:1

ii) (1,7), (6,-3) in 2:3

iii) (-1,7), (4,-3) in 2:3

iv) (3,5), (4,2) in 3:2

v) (1,-2), (4,7) in 1:2

III. 1) Find the ratio in which the line segment joining the points (-3,10) & (6,-8) is divided by (-1,6).

In what ratio does the

(i) point $(-6, 5)$ divide the join of $(-3, -1)$ and $(-8, 9)$?

ii) point $(1, 12)$ divide the join of $(5, 6)$ and $(7, 3)$?

3. Find the co-ordinates of the mid point of the line joining the points $(4, 7)$ and $(6, 9)$

4. Find the middle point of the line joining $(-3, -6)$ and $(1, -2)$.

5. P.t. the points $(-2, -1)$, $(1, 0)$, $(4, 3)$ and $(1, 2)$ are the vertices of a parallelogram.

6. If the points $A(6, 1)$, $B(8, 2)$, $C(9, 4)$ and $D(P, 3)$ are the vertices of a parallelogram taken in order, find the value of P.

7. Find the coordinates of the points of ~~trisect~~ trisection of the line segment joining $(4, -1)$ and $(-2, -3)$.

8. Find the area of triangles formed by the

following vertices:

(i) (3, 4), (2, −1), (4, −6)

ii) (3, 8), (−4, 2), (5, −1)

iii) (5, 2), (−9, −3), (−3, −5)

iv) (8, −6), (−4, 6), (−10, −8)

v) (3, 2), (−1, 0), (1, −12)

vi) (−5, 7), (−4, −5), (4, 5)

vii) (2, 3), (−1, 0), (2, −4)

viii) (−5, −1), (3, −5), (5, 2)

9. In each of the following find the value of 'k' for which the points are collinear.

(i) (7, −2), (5, 1), (3, k)

ii) (8, 1), (k, −4), (2, −5)

iii) (−1, k), (2, 1), (5, −1)

(iv) (1, 1), (3, k), (−1, 4)

v) (2, 1), (k, −1), (−1, 3).

10. Find the area of the quadrilateral whose vertices, taken in order, are $(-4,-2)$, $(-3,-5)$, $(3,-2)$ & $(2,3)$.

11. Find the area of quadrilateral PQRS whose vertices are respectively P(1,1) Q(7,-3) R(12,2) and S(7,21).

Quadratic Equations

1. Check whether the following are Quadratic equations;

i) $(x-3)(x+5)+7=0$

ii) $(x+1)^2 = 2(x-3)$

iii) $x^2 - 2x = (-2)(3-x)$

iv) $(x-2)(x+1) = (x-1)(x+3)$

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

vi) $x^2+3x+1 = (x-2)^2$

vii) $(2x-1)(x-3) = (x+5)(x-1)$

2. Find the roots of the following Q. Eqs. by factorisation:

i) $x^2 - 3x - 10 = 0$ (ii) $2x^2 + x - 6 = 0$

iii) $100x^2 - 20x + 1 = 0$ iv) $4x^2 - 25x = 0$

v) $x^2 + 2\sqrt{3} + 3 = 0$ vi) $x^2 - 3 = 0$ vii) $16x^2 - 49 = 0$

viii) $3x^2 - 14x - 5 = 0$ ix) $12x^2 - x - 1 = 0$ (x) $x^2 - 7x - 44 = 0$

3. Find two nos. whose sum is 27 and product is 182.

4. Find two consecutive positive integers, sum of whose squares is 365.

5. The altitude of a right triangle is 7 Cm less than its base. If the hypotenuse is 13 Cm, find the other two sides.

6. Solve the Q. Eqs. by factorisation.

(i) $x + \frac{4}{x} = -4 \quad (x \neq 0)$ (ii) $x - \frac{1}{x} = 3 \quad (x \neq 0)$

7. Find two consecutive natural nos. whose product is 20.

8. Find the roots by completing the square method.

(i) $x^2 + 8x + 4 = 0$ (ii) $x^2 + 4x - 5 = 0$ (iii) $2x^2 - 7x + 3 = 0$

iv) $2x^2 + x - 4 = 0$ (v) $2x^2 + x + 4 = 0$ (vi) $x^2 + 6x - 7 = 0$

vii) $2x^2 + 5x - 3 = 0$ (viii) $x^2 - 3x + 1 = 0$ (ix) $x^2 + 3x = 7$

(9) Solve the Q. Eqs. by formula method.

(i) $x^2 - 7x + 12 = 0$ (ii) $x^2 - 4x + 2 = 0$ (iii) $x^2 + 8x + 6 = 0$

iv) $2y^2+6y=3$ (v) $8x^2=x+2$ (vi) $15m^2-11m+2=0$.
(vii) $x^2-2x+1=0$

10. The diagonal of a rectangular field is 60 mtrs. more than the shorter side. If the longer side is 30 mtrs more than the shorter side, find the sides of the field.

11. Find the discriminant of the quadratic equation $2x^2-4x+3=0$, and hence find the nature of its roots.

12. Find the nature of the roots of the following:
(i) $x^2-7x+2=0$ (ii) $x^2-2x+3=0$ (iii) $x^2+3x-4=0$
iv) $2x^2-6x+3=0$ (v) $2x^2-3x+5=0$ (vi) $3x^2-2x+1=0$
(vii) $2n^2+5n-1=0$ (viii) $a^2+4a+4=0$.

13. Find the discriminant of the following:
(i) $x^2+4x+3=0$ (ii) $2x^2+4x+5=0$ (iii) $3x^2+5x+6=0$
iv) $4x^2+5x+7=0$. (v) $6x^2+x-2=0$.

14. Find the value of 'k' for the following, so that they have two equal roots.
(i) $2x^2+kx+3=0$ (ii) $2x^2+2x+k=0$ (iii) $kx^2-2x+2=0$.
iv) $2x^2-10x+k=0$ (v) $9x^2-24x+k=0$ (vi) $x^2-kx+9=0$

15 Represent the following situations in the form of Q. eqs.

(i) product of two even numbers is double of the greater number.

ii) Length of a field is triple of its breadth and its area is 300 m^2.

(iii) The hypotenuse of a right angled triangle is 6m. more than twice of the shortest side. The third side is two metre less than the hypotenuse.

Polynomials

1. Find the zeroes of the following Quadratic Polynomials and verify the relationship b/n the zeroes and the coefficient.

i) $x^2 - 2x - 8$ (ii) $4s^2 - 4s + 1$ (iii) $6x^2 - 3 - 7x$.

iv) $t^2 - 15$ (v) $3x^2 - x - 4$ (vi) $4u^2 + 8u$.

(vii) $x^2 + 8x + 15$ (viii) $2x^2 - 5x - 12$ (ix) $x^2 - 5$ (x) $3x^2 + 2x + 5$.

2. Find a quadratic polynomial each with the given nos. as the sum and product of its zeroes respectively.

(i) 4; -2 (ii) 1, 1 (iii) 4, 1 (iv) -5, -6 (v) 0, $\sqrt{5}$.

vi) $-\frac{1}{4}, \frac{1}{4}$. (vii) $\frac{1}{4}, -1$.

2. Find a quadratic polynomial whose zeroes are
(i) 2 and -3. (ii) 2 and -5. (iii) $\frac{5}{2}$ and $\frac{-5}{2}$.

3. Divide the $p(x)$ by $g(x)$ and find $q(x)$ and $r(x)$.

(i) $p(x) = x^3 - 3x^2 + 5x - 3$, $g(x) = x^2 - 2$.

ii) $p(x) = x^4 - 3x^2 + 4x + 5$, $g(x) = x^2 + 1 - x$

iii) $p(x) = x^3 - 3x^2 + 3x - 2$, $g(x) = x - 2$

iv) $p(x) = 3x^3 + x^2 - 7x - 5$, $g(x) = 3x - 5$

4. Divide $p(x)$ by $g(x)$ and verify division algorithm.

i) $p(x) = x^3 + 4x^2 - 5x + 6$, $g(x) = x + 1$

ii) $p(x) = x^4 - 4x^2 + 12x + 9$, $g(x) = x^2 + 2x - 3$.

5. Check whether the first polynomial is a factor of second polynomial by dividing the second polynomial by the first polynomial.

i) $t^2 - 3$, $2t^4 + 3t^3 - 9t - 12$.

P(x)

ii) $x^3 - 3x + 1$, $x^5 - 4x^3 + 3x + 1$

6. On dividing $x^3 - 3x^2 + x + 2$ by a $g(x)$, the quotient and remainder were $x - 2$ and $-2x + 4$, respectively. Find $g(x)$.

7. Verify that $3, -1, -\frac{1}{3}$ are the zeroes of the cubic polynomial $p(x) = 3x^3 - 5x^2 - 11x - 3$, and then verify the relationship b/n the zeroes and the coefficients.

8. Verify that -1, 3 and 6 are the zeroes of the cubic polynomial $p(y) = y^3 - 8y^2 + 9y + 18$ and then verify the relationship b/n the zeroes and the coefficients.

1. Add:

i) $5\frac{3}{5} + 2\frac{1}{10}$ (ii) $5\frac{2}{3} + 4\frac{2}{4}$

iii) $5\frac{3}{4} + 4\frac{2}{5}$ iv) $9\frac{3}{5} + 1\frac{2}{4}$

v) $6\frac{3}{10} + 1\frac{1}{4}$ (vi) $9\frac{1}{4} + 3\frac{1}{5}$

vii) $9\frac{1}{3} + 4\frac{1}{5}$ (viii) $6\frac{4}{5} + 1\frac{1}{4}$

viii) $6\frac{4}{3} + 2\frac{1}{3}$ ix) $9\frac{7}{10} + 1\frac{2}{3}$

x. $6\frac{2}{4} + 3\frac{3}{10}$

II Sub:

1) $5\frac{3}{5} - 2\frac{1}{10}$ (2) $5\frac{2}{3} - 4\frac{2}{4}$

3) $5\frac{3}{4} - 4\frac{2}{5}$ 4) $9\frac{3}{5} - 1\frac{2}{4}$

5) $9\frac{1}{4} - 3\frac{1}{5}$ (6) $9\frac{1}{3} - 4\frac{1}{5}$

7) $6\frac{4}{5} - 1\frac{1}{4}$ 8) $9\frac{7}{10} - 1\frac{2}{3}$

9) $6\frac{2}{4} - 3\frac{4}{10}$ 10) $6\frac{3}{10} - 1\frac{2}{3}$

Multiply:

1) $3\frac{2}{3} \times 10$ (2) $\frac{8}{9} \times 10\frac{2}{7}$ (3) $\frac{3}{4} \times \frac{10}{9} \times \frac{12}{15}$

4) $15\frac{2}{3} \times 10\frac{3}{5}$ (5) $\frac{7}{26} \times \frac{-52}{28}$ (6) $\frac{7}{26} \times$

6) $\frac{-15}{13} \times \frac{39}{-25}$ (7) $15\frac{2}{7} \times 10\frac{3}{5}$

Divide:

1) $\frac{4}{9} \div \frac{-5}{12}$ (2) $-8 \div \left(\frac{-7}{16}\right)$ (3) $\left(\frac{-1}{10}\right) \div \left(\frac{-8}{5}\right)$

4) $\left(\frac{-16}{35}\right) \div \left[\frac{-15}{14}\right)$ 5) $\left(\frac{-12}{7}\right) \div (-18)$

6) $\frac{2}{3} \div \left(\frac{-7}{12}\right)$ (7) $\left(\frac{7}{-4}\right) \div \frac{63}{64}$ (8) $\frac{-3}{4} \div \frac{9}{-16}$

9) $5 \div \left(\frac{-5}{7}\right)$ (10) $0 \div \left(\frac{-7}{5}\right)$