Practice Test Paper - 3

Name: **Max Marks: 25**

Chapter - Pair of Linear Equations in Two Variables and Triangles **Class - 10**

1 Marks

1. The pair of equations $x = 0$ and $y = -7$ has how many solutions
2. If in two triangles ABC and QPR, $\frac{AB}{QR} = \frac{BC}{PR} = \frac{CA}{PQ}$ then which triangles are congruent?
3. If $2x - 3y = 7$ and $(a + b)x - (a + b - 3)y = 4a + b$ have infinite solutions the $a + b$?
4. Graphically, the pair of equations given by $6x - 3y + 10 = 0$, $2x - y + 9 = 0$ will be ?
5. ABCD is a trapezium with AD ∥ BC and AD = 4cm. If the diagonals AC and BD intersect each other at O such that $\frac{AO}{OC} = \frac{DO}{OB} = \frac{1}{2}$, then BC =?

2 Marks

6. Solve for x and y:

   $\frac{ax}{b} - \frac{by}{a} = a + b\,;\, ax - by = 2ab$

7. Determine the value of k so the pair of linear equations is inconsistent

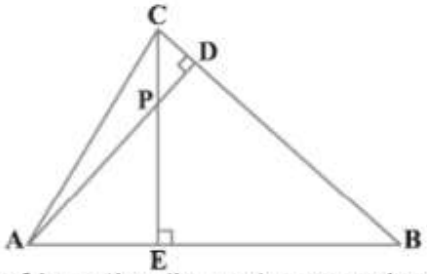
   $(3k + 1)x + 3y - 2 = 0$

   $(k^2 + 1)x + (k - 2)y - 5 = 0$

8. In the figure, altitudes AD and CE of Δ ABC intersect each other at the point, P. Show, that:

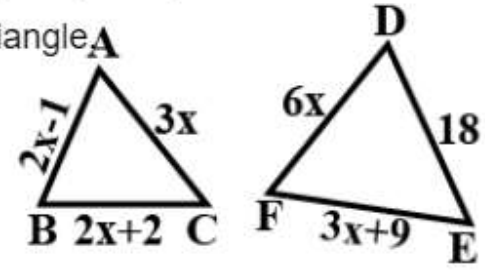
   (i) ΔABD ~ ΔCBE

   (ii) ΔPDC ~ ΔBEC

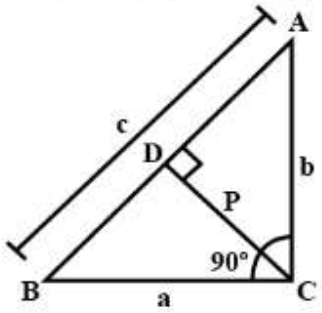


3 Marks

9. In the figure, if △ABC~△DEF and their sides are of lengths (in cm) as marked along them, then find the lengths of the sides of each triangle.



10. ABC is a right triangle, right angled at C. If p is the length of the perpendicular from C to AB and a, b, c have the usual meaning, then prove that:



(a) pc = ab

(b) $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$

4 Marks

11. Draw the graph of the following equation:
$2x - y = 1, x + 2y = 13$
Find the solution of the equations from the graph and shade the triangular region formed by line and y-axis. Also, find the area of triangle.

12. Solve the given equations

(a) $3x + 2y - 7 = 0;\ 4x + y - 6 = 0$ by Substitution Method

(b) $3x - 5y = 4;\ 9x - 2y = 7$ by Elimination Method (CBSE)/Cross Multiplication (GSEB)

Self Practice

1. Prove that $\sqrt{5}$ is an irrational number.
2. Its given that $\sqrt{5}$. Prove that $6+\sqrt{5}$ is an irrational number.
3. If α and β are zeros of the polynomial $p(x) = 2x^2 + 5x + k$ satisfying the relation, $\alpha^2 + \beta^2 + \alpha\beta = \frac{21}{4}$, then find the value of k.
4. Find the zeros of the polynomial $7y^2 - \frac{11}{3}y - \frac{2}{3}$ and verify the relationship between the zeros and the coefficients.
5. Find the value of p, for which one root of quadratic polynomial $px^2 - 14x + 8 = 0$ is 6 times the other.
6. Find the root of the following polynomial: $5\sqrt{5} + 30x + 8\sqrt{5}$.
7. Polynomial $x^4 + 7x^3 + 7x^2 + px + q$ is exactly divisible by $x^2 + 7x + 12$, then find the value of p and q.
8. Prove the following $(cosec\ A - sin\ A)(sec\ A - cos\ A) = \frac{1}{tan\ A + cot\ A}$
9. If β and $\frac{1}{\beta}$ are zeroes of the polynomial $(\alpha^2 + \alpha)x^2 + 61x + 6\alpha$. Find the values of β and α.
10. Prove the following $\frac{tan\ A}{1 - cot\ A} + \frac{cot\ A}{1 - tan\ A} = 1 + tan\ A + cot\ A$
11. Solve the following
    (a) Find the ratio in which the point $(-3, k)$ divides the line segment joining the points $(-5, -4)$ and $(-2, 3)$. Also find the value of k.
    (b) If $P(9a - 2, -b)$ divides the line segment joining $A(3a + 1, -3)$ and $B(8a, 5)$ in the ratio 3 : 1. Find the values of a & b.
12. Find the value of k, if the points $P(5,4)$, $Q(7, k)$ and $R(9, -2)$ are collinear.