SWOT INSTITUTE
STRAIGHT LINE
XI-TEST

Time : 1 hr.

1. Find the value of x for which the points (x, –1), (2, 1) and (4, 5) are collinear.
2. If three points (h, 0), (a, b) and (0, k) lie on a line, show that $\frac{a}{h}+\frac{b}{k}=1$.
3. Find equation of the line through the point (0, 2) making an angle $\frac{2\pi}{3}$ with the positive x-axis. Also, find the equation of linen parallel to it and crossing the y-axis at a distance of 2 units below the origin.
4. Find equation of the line passing through the point (2, 2) and cutting off intercepts on the axes whose sum is 9.
5. Find the equation of the line that cuts off equal intercepts on the coordinate axes and passes through the point (2, 3).
6. P(a, b) is the mid-point of a line segment between axes. Show that equation of the line is $\frac{x}{a}+\frac{y}{b}=2$.
7. Find the angle between the lines y = $\sqrt{3}$ x – 5 = 0 and $\sqrt{3}$ y – x + 6 = 0.
8. Reduce the equation $\sqrt{3}$ x + y – 8 = 0 into normal form. Find the values of p and ω.
9. Find the distance of the point (3, –5) from the line 3x – 4y – 26 = 0.
10. Prove that the line through the point (x_1, y_1) and parallel to the line Ax + By + C = 0 is

    $A(x - x_1) + B(y - y_1) = 0$.
11. The perpendicular from the origin to the line y = mx + c meets it at the point (–1, 2). Find the values of m and c.
12. If p and q are the lengths of perpendicular from the origin to the lines x cos θ – y sin θ = k cos 2θ and x sec θ + y cosec θ = k, respectively, prove that $p^2 + 4q^2 = k^2$.
13. If p is the length of perpendicular from the origin to the line whose intercepts on the axes are a and b, then show that $\frac{1}{p^2}=\frac{1}{a^2}+\frac{1}{b^2}$.
14. The line through the points (h, 3) and (4, 1) intersects the line 7x – 9y – 19 = 0 at right angle. Find the value of h.