

XI Maths Worksheet

Time: 60 min

Chapter#10. Straight Lines

Full Marks:

- Q.1 The length L (in centimetre) of a copper rod is a linear function of its Celsius temperature C . In an experiment, if $L = 124.942$ when $C = 20$ and $L = 125.134$ when $C = 110$, express L in terms of C . (3 marks)
- Q.2 Write the equation of a line parallel to x-axis and passing through $(-2,3)$.
- Q.3 Point $R(h, k)$ divides a line segment between the axes in the ratio $1:2$. Find equation of the line. (5 marks)
- Q.4 Find the equation of the straight line which makes an angle of 60° with the x - axis and cuts of an intercept -2 from the y - axis.
- Q.5 Find the equation of the straight line joining the points (a,b) and $\{(a+b),(a-b)\}$.
- Q.6 Find the slope of a line which passes through $(1,2)$ and $(-3,4)$? (1 mark)
- Q.7 Find the coordinates of point C , which divides the line segment joining the points $D(-2, 5)$ and $E(4, 6)$ in the ratio $2 : 3$. (2 marks)
- Q.8 If three lines whose equations are $y = m_1x + c_1$, $y = m_2x + c_2$, $y = m_3x + c_3$ are concurrent, then show that $m_1(c_2 - c_3) + m_2(c_3 - c_1) + m_3(c_1 - c_2) = 0$. (5 marks)
- Q.9 Find the equation of a line which is equidistant from the lines $x = -4$ and $x = 8$. (1 mark)
- Q.10 The vertices of ΔPQR are $P(2, 1)$, $Q(-2, 3)$ and $R(4, 5)$. Find equation of the median through the vertex R . (3 marks)
- Q.11 Find the value of p so that the three lines $3x + y - 2 = 0$, $px + 2y - 3 = 0$ and $2x - y - 3 = 0$ may intersect at one point. (3 marks)
- Q.12 Reduce $4x - 3y - 12 = 0$ to the "intercept form". (2 marks)
- Q.13 Find the equation of the line perpendicular to the line $2x - 3y + 7 = 0$ and having x-intercept 4. (3 marks)
- Q.14 By using the concept of equation of a line, prove that the three points $(3, 0)$, $(-2, -2)$ and $(8, 2)$ are collinear. (3 marks)
- Q.15 Find the equation of the right bisector of the line segment joining the points $(3, 4)$ and $(-1, 2)$. (3 marks)
- Q.16 Find the equation of the straight line passing through $(2, 3)$ and cutting off intercepts equal in magnitude and opposite in sign. (2 marks)
- Q.17 Prove that the product of the lengths of the perpendiculars drawn from the points $(\sqrt{a^2 - b^2}, 0)$ and $(-\sqrt{a^2 - b^2}, 0)$ to the line $\frac{x}{a} \cos \theta + \frac{y}{b} \sin \theta = 1$ is b^2 . (5 marks)
- Q.18 Find equation of the line perpendicular to the line $x - 7y + 5 = 0$ and having x intercept 3. (3 marks)
- Q.19 A line passes through (x_1, y_1) and (h, k) . If slope of the line is m , show that $k - y_1 = m(h - x_1)$. (2 marks)
- Q.20 Write the equation of a line passing through $(2,3)$ and makes an angle of 45° with x-axis.