

CHAPTER-10
STRAIGHT LINES
01 MARK TYPE QUESTIONS

Q. NO	QUESTION	MARK
1.	Two lines are said to be parallel if the difference of their slope is a)-1 b) 1 c) 0 d) None	1
2.	If A(6, 4) and B(2, 12) are the two points, then the slope of a line perpendicular to line AB is a)-2 b)2 d) $\frac{1}{2}$ d)-1/2	1
3.	Find the equation of lines passing through (1,2) and making angle 30° with Y-axis.	1
4.	Calculate the slope of a line, that passes through the origin, and the mid-point of the segment joining the points P (0, -4) and B (8, 0).	1
5.	The locus of a point, whose abscissa and ordinate are always equal is (a) $x + y + 1 = 0$ (b) $x - y = 0$ (c) $x + y = 1$ (d) none of these.	1
6.	Two lines $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ are coincident if (a) $a_1/a_2 = b_1/b_2 \neq c_1/c_2$ (b) $a_1/a_2 \neq b_1/b_2 = c_1/c_2$ (c) $a_1/a_2 \neq b_1/b_2 \neq c_1/c_2$ (d) $a_1/a_2 = b_1/b_2 = c_1/c_2$	1
7.	What can be said regarding a line if its slope is negative? a. θ is an acute angle b. θ is an obtuse angle c. Either the line is x-axis or it is parallel to the x-axis. d. None of these	1
8.	Find the equation of line passing through point (0, 0) having slope m is	1
9.	The perpendicular distance of a line $4X - 3Y + 5 = 0$ from the point (2, 1) is a) $\frac{7}{5}$ b) $\frac{9}{4}$ c) 2 d) 1	1
10.	The Fahrenheit temperature F and absolute temperature K satisfy a linear equation. Given that $K = 273$ when $F = 32$ and that $K = 373$ when $F = 212$. Express find the value of F, when $K = 0$.	1
11.	A line passes through the point (2, 2) and is perpendicular to the line $3x + y = 3$. Its y intercept is a) $\frac{1}{3}$ b) 5 c) $\frac{3}{4}$ d) $\frac{4}{3}$	1
12.	The area of a triangle whose vertices are (3, -2), (5, 6) and (-2, -5) is a) 15 sq. units b) 16 sq. units c) 17 sq. units d) 18 sq. units	1
13.	The figure form by the lines $ax \pm by \pm c = 0$ is a) a rectangle b) a square c) a rhombus d) none of these	1
14.	The line segment joining the points (-3, -4) and (1, -2) is divided by y-axis in the ratio a) 1: 3 b) 2: 3 c) 3: 1 d) 3: 2	1

15.	The points which divide the join of (1, 2) and (3, 4) externally in the ratio 1: 1 a) lies in the 3rd quadrant b) lies in the 2nd quadrant c) lies in the 1st quadrant d) cannot be found	1
16.	Area of the triangle formed by the points ((a + 3) (a + 4), (a + 3)), ((a + 2) (a + 3), (a + 2)) and ((a + 1) (a + 2), (a + 1)) is a) $25a^2$ b) $5a^2$ c) $24a^2$ d) none of these	1
17.	If the point (5, 2) bisects the intercept of a line between the axes, then its equation is a) $5x + 2y = 20$ b) $2x + 5y = 20$ c) $5x - 2y = 20$ d) $2x - 5y = 20$	1
18.	The angle between the lines $2x - y + 3 = 0$ and $x + 2y + 3 = 0$ is a) 90° b) 60° c) 45° d) 30°	1
19.	The line segment joining the points (1, 2) and (- 2, 1) is divided by the line $3x + 4y = 7$ in the ratio a) 3: 4 b) 4: 3 c) 9: 4 d) 4: 9	1
20.	The centroid of a triangle is (2, 7) and two of its vertices are (4, 8) and (- 2, 6). The third vertex is a) (0, 0) b) (4, 7) c) (7, 4) d) (7, 7)	1
21.	Slope of a line which cuts off intercepts of equal lengths on the axes is (a) -1 (b) 0 (c) 2 (d) $\sqrt{3}$	1
22.	y-intercept of the line $4x - 3y + 15 = 0$ is (a) $-15/4$ (b) $15/4$ (c) -5 (d) 5	1
23.	The equation of the line passing through the point (2, 3) with slope 2 is (a) $2x + y - 1 = 0$ (b) $2x - y + 1 = 0$ (c) $2x - y - 1 = 0$ (d) $2x + y + 1 = 0$	1
24.	The equation of the line which cuts off equal and positive intercepts from the axes and passes through the point (α , β) is (a) $x + y = \alpha + \beta$ (b) $x + y = \alpha$ (c) $x + y = \beta$ (d) None of these	1
25.	Two lines are perpendicular if the product of their slopes is (a) 0	1

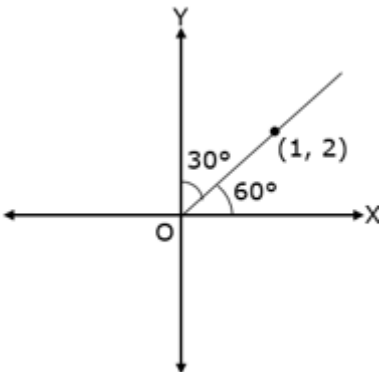
	(b) 1 (c) -1 (d) None of these	
26.	The intercept cut off by a line from y-axis is twice than that from x-axis, and the line passes through the point (1, 2). The equation of the line is (a) $2x + y = 4$ (b) $2x + y + 4 = 0$ (c) $2x - y = 4$ (d) $2x - y + 4 = 0$	1
27.	What can be said regarding if a line if its slope is zero (a) θ is an acute angle (b) θ is an obtuse angle (c) Either the line is x-axis or it is parallel to the x-axis. (d) None of these	1
28.	The distance between the two parallel lines $2x + y - 5 = 0$ and $2x + y + 10 = 0$ is (a) $\sqrt{5}$ (b) $3\sqrt{5}$ (c) $2\sqrt{5}$ (d) $4\sqrt{5}$	1
29.	The equation of the line passing through the point (1,2) and perpendicular to the line $x + y + 1 = 0$ is (a) $y - x + 1 = 0$ (b) $y - x - 1 = 0$ (c) $y - x + 2 = 0$ (d) $y - x - 2 = 0$	1
30.	The inclination of the line $x - y + 3 = 0$ with the positive direction of x-axis is (a) 45° (b) 135° (c) -45° (d) -135°	1
31.	If the straight lines $ax - 2y = 1$ and $6x - 4y = b$ are identical, then (a) $a=3, b=2$ (b) $a=-3, b=2$ (c) $a=3, b=-2$ (d) $a=-3, b=-2$	1
32.	The equation of a line which makes an angle of 45° With x-axis and cuts the y-axis at (0, 3) is (a) $x=3$ (b) $y=3$ (c) $y=x+3$ (d) None of these	1
33.	The magnitude of the angle that the line $\sqrt{3}x + y - 1 = 0$ makes with the positive direction of x-axis is (a) 150° (b) 30° (c) 60° (d) 120°	1
34.	Equation of the straight line which passes through thr point (3,2) and parallel to x-axis is (a) $x=3$ (b) $x+3=0$ (c) $y-2=0$ (d) $y+2=0$	1
35.	The area of the triangle made by the straight line $2x+3y-12=0$ with the co-ordinate axes is (a) 12 sq.units (b) 16 sq.units (c) 8 sq.units (d) 6 sq.units	1
36.	Find the value of K so that the line $2x+ky-9=0$ may be parallel to $3x-4y+7=0$.	1
37.	What is the equation of a line whose perpendicular distance from the origin is 5 units and	1

	angle between the positive direction of the x-axis and the perpendicular is 30° .	
38.	The foot of the perpendicular drawn from origin on the line $x+y=2$ is (a) (2,-1) (b) (-2, 1) (c) (1, 1) (d) (1, 2)	1
39.	The angle between the lines $y=x$ and $y=-x$ is (a) $\frac{\pi}{4}$ (b) $\frac{2\pi}{3}$ (c) $\frac{\pi}{6}$ (d) $\frac{\pi}{2}$	1
40.	P(a, b) is the midpoint of a line segment between axes. Then the equation of the line is (a) $\frac{x}{c} + \frac{y}{d} = 1$ (b) $\frac{x}{a} + \frac{y}{b} = 1$ (c) $\frac{x}{a} + \frac{y}{b} = 2$ (d) $\frac{x}{c} + \frac{y}{d} = 2$	1
41.	1) Which one of the following is the nearest point on the line $3x-4y=25$ from the origin? (a) (-1,-7) (b) (3,-4) (c) (-5,-8) (d) (3,4)	1
42.	Let A(1,k), B(1,1) and C(2,1) be the vertices of the right angled triangle with AC as its hypotenuse. If the area of the triangle is 1 sq unit, then the set of values which 'k' can take is given by (a) {-1,3} (b) {-3,-2} (c) {1,3} (d) {0,2}	1
43.	ABC is an isosceles triangle. If the coordinates of the base are B(1,3) and C(-2,7), the coordinate of the vertex A can be (a) (1,6) (b) (-1/2, 5) (c) (5/6,6) (d) None of these.	1
44.	Slope of non-vertical line passing through the points (x_1, y_1) and (x_2, y_2) is given by: (a) $m = \frac{y_2 - y_1}{x_2 - x_1}$ (b) $m = \frac{x_2 - x_1}{y_2 - y_1}$ (c) $m = \frac{y_2 + y_1}{x_2 + x_1}$ (d) $m = \frac{y_2 - y_1}{x_2 + x_1}$	1
45.	If a line with slope m makes x-intercepts d. then the equation of line is (a) $y = m(d - x)$ (b) $y = m(x - d)$ (c) $y = m(d + x)$ (d) $y = mx + d$	1
46.	The inclination of the line $x - y + 3 = 0$ with the positive direction of x axis is . (a) 45° (b) 135° (c) -45° (d) -135°	1
47.	A line passes through P(1,2) such that its intercept between the axes is bisected at P. The equation of the line is ; (a) $x+2y=5$ (b) $x-y+1=0$ (c) $x+y-3=0$ (d) $2x+y-4=0$	1
48.	Line through the points (-2,6) and (4,8) is perpendicular to the line through the points (8,12) and (x,24). find the values of x. (a) 2 (b) 3 (c) 4 (d) 5	1
49.	The relation between a, b, a' and b' such that the two lines $ax + by = c$ and $a'x + b'y = c'$ are perpendicular is (A) $aa' - bb' = 0$ (b) $aa' + bb' = 0$ (c) $ab + a'b' = 0$ (d) $ab - a'b' = 0$	1
50.	If the points (x,y), (1,2) and collinear (-3,4) are collinear, then (a) $x+2y-5=0$ (b) $x+y-1=0$ (c) $2x+y-4=0$ (d) $2x-y+10=0$	1
51.	Slope of a line which cuts off intercepts of equal lengths on the axes is a) -1 b) 0 c) 1 d) 2	1
52.	The value of y so that the line through (3,y) and (2,7) is parallel to the line through (-1,4) and (0,6) is:	1

	a) 8 b) 9 c) -9 d) -8	
53.	Equation of the line parallel to $x-7y+5=0$ and having x- intercept 3 a) $x-7y +3=0$. b) $3x-7y -3=0$. c) $x-7y -5=0$ d) $x-7y -3=0$.	1
54.	Find the angle between the lines $y- \sqrt{3} x -5 =0$ and $\sqrt{3} y -x +6 =0$. (A) 60 (B) 120 (C) 150 (D) none of these	1
55.	The slope of the line $8x- 4y+5 =0$ is: (A) 1 (B) 2 (C) -1 (D) -2	1
56.	The equation of the line which is parallel to y-axis and passing through the point (3,-4) is a) $x=-3$ b) $y=3$ c) $x= 3$ d) $y=-3$	1
57.	The x- intercept of the line $5x -4y-5=0$ is a) 5 b)1 c)-1 d)4	1
58.	Find the equation of the line intersecting x-axis at a distance of 3 units to the left of the origin with slope -2. a) $2x+y+6=0$ b) $2x - y +6 =0$ c) $2x + y - 6 =0$ d) $X+ y+ 3 =0$	1
59.	Find the equation of the right bisector of the line segment joining the points (3,4) and (-	1

	<p>1,2).</p> <p>(A) $2x - y - 5 = 0$ (B) $2x + y - 5 = 0$ (C) $x + y - 5 = 0$ (D) $2x + 3y - 5 = 0$</p>	
60.	<p>Assertion (A). The slope of a line passing through two points (-5, 2) and (3,-2) is $-1/2$</p> <p>Reason (R). The slope of a line passing through two given points (x_1, y_1) and (x_2, y_2) is $(x_2 - x_1)/(y_2 - y_1)$</p> <p>a) Both A and R are true and R is the correct explanation of A.</p> <p>b) Both A and R are true but R is not correct explanation of A.</p> <p>c) A is true but R is false</p> <p>d) A is false but R is true.</p>	1

ANSWERS:

Q. NO	ANSWER	MARKS
1.	0	1
2.	d) $\frac{1}{2}$	1
3.	<p>Given that line passing through (1, 2) making an angle 30° with y – axis. Angle made by the line with x – axis is $(90^\circ - 30^\circ) = 60^\circ$ Slope of the line, $m = \tan 60^\circ = \sqrt{3}$ So, the equation of the line passing through the point (x_1, y_1) and having slope 'm' is $y - y_1 = m(x - x_1)$. Here, $(x_1, y_1) = (1, 2)$ and $m = \sqrt{3}$ $\Rightarrow y - 2 = \sqrt{3}(x - 1)$ $\Rightarrow y - 2 = \sqrt{3}x - \sqrt{3}$ $\Rightarrow \sqrt{3}x - y - \sqrt{3} + 2 = 0$</p> 	1
4.	<p>Given that, The coordinates of the mid-point of the line segment joining the points P (0, -4) and B (8, 0) are: $[(0+8)/2, (-4+0)/2] = (4, -2)$ It is known that the slope (m) of a non-vertical line passing through the points (x_1, y_1) and (x_2, y_2) is given by the formula $m = (y_2 - y_1) / (x_2 - x_1)$, where $(x_2 \text{ is not equal to } x_1)$ Therefore, the slope of the line passing through the points (0, 0,) and (4, -2) is $m = (-2-0)/(4-0)$ $m = -2/4$ $m = -\frac{1}{2}$ Hence, the required slope of the line is $-1/2$</p>	1
5.	<p>Let, the point P is (h,k) Given:Abscissa=Ordinate $\Rightarrow h=k$ $h-k=0$ $\Rightarrow x-y=0$ is the locus of a point whose abscissa and ordinate are always equal.</p>	1
6.	(d) $a_1/a_2 = b_1/b_2 = c_1/c_2$	1

7.	b. θ is an obtuse angle	1
8.	$Y = mX$	1
9.	<p>Correct option is B)</p> <p>The distance d between the line $AX + BY + C = 0$ and point (X_1, Y_1) is given by</p> $d = \left \frac{AX_1 + BY_1 + C}{\sqrt{A^2 + B^2}} \right $ <p>Therefore, Required distance = $\frac{4 \times 2 + (-3) \times 1 + 5}{\sqrt{2^2 + 1^2}} = 10/5 = 2$</p> <p>Option B is correct.</p>	1
10.	$F = -459.4$	1
11.	D	1
12.	C	1
13.	C	1
14.	C	1
15.	D	1
16.	D	1
17.	B	1
18.	A	1
19.	D	1
20.	B	1
21.	(a) -1	1
22.	(d) 5	1
23.	(c) $2x - y - 1 = 0$	1
24.	(a) $x + y = \alpha + \beta$	1
25.	(c) -1	1
26.	(a) $2x + y = 4$	1
27.	(c) Either the line is x-axis or it is parallel to the x-axis	1
28.	(b) $3\sqrt{5}$	1
29.	(b) $y - x - 1 = 0$	1
30.	(a) 45°	1
31.	a.	1
32.	c	1
33.	d	1
34.	c	1
35.	a	1
36.	<p>Given,</p> <p>The Equations of two parallel lines are $2x + ky - 9 = 0$ and $3x - 4y + 7 = 0$</p> <p>Slope of the line is given by $m = \frac{-(\text{co efficient of } X)}{\text{co efficient of } Y}$</p> <p>According to the question,</p> <p>Slope of 1st line = slope of 2nd line</p> $\frac{-2}{k} = \frac{-3}{-4} \Rightarrow k = \frac{-8}{3}$	1
37.	<p>Given,</p> <p>Perpendicular distance of the line from the origin is 5 units.</p>	1

	<p>Angle between the positive direction of the x-axis and the perpendicular is 30°. Hence, $p=5, \alpha=30^\circ$ Required equation is given by $x \cos \alpha + y \sin \alpha = p$. $X \cos 30^\circ + y \sin 30^\circ = 5$ $\sqrt{3}x + y - 10 = 0$.</p>	
38.	c	1
39.	d	1
40.	<p>Given, Mid-point of a line segment between axes P(a,b) ATQ, Let P be the mid-point of A(c,0) and B(0,d) Required equation is $\frac{x}{a} + \frac{y}{b} = 1$; i.e., $\frac{x}{c} + \frac{y}{d} = 1$(i) Where, x-intercept = a y-intercept = b Coordinate of P = $(\frac{c}{2}, \frac{d}{2})$ [\because mid- point] $\therefore (a,b) = (\frac{c}{2}, \frac{d}{2})$ $c=2a$ $d=2b$ Put the value of c and d in equation (i) $\frac{x}{2a} + \frac{y}{2b} = 1 \Rightarrow \frac{x}{a} + \frac{y}{b} = 2$. Ans: Option-(c)</p>	1
41.	(b) (3,-4)	1
42.	(a)	1
43.	(c)	1
44.	(a)	1
45.	(b)	1
46.	(a)	1
47.	(d)	1
48.	(C)	1
49.	(b)	1
50.	(a)	1
51.	a	1
52.	b	1

53.	d	1
54.	c	1
55.	b	1
56.	c	1
57.	b	1
58.	a	1
59.	b	1
60.	c	1