Straight Lines

1m	2m	3m	4m	5m	Total
1(K)	1(U)	1(U)	–	1(S)	11

1 MARK QUESTIONS

1. Find the slope of the line with inclination $\frac{\pi}{4}$.
2. Write the equation of the line which is parallel to x-axis and at a distance of 5 units below the x-axis.
3. Find the slope of $\sqrt{3x}+y+2=0$.
4. Reduce $2x + 3y = 7$ to slope intercept form.
5. Reduce $\sqrt{3x}+y+8=0$ to intercept form.
6. Find slope of $3x + 5y – 11 = 0$.
7. If the slope of line AB is $\frac{3}{4}$ and AB $\perp$ CD then find slope of CD.
8. Find centroid of the triangle formed by the points (2, 4) (5, 3) and (8, 3)
9. Find the slope of the line joining points (1, 2) and (–1, –2).
10. Find the slope of line with inclination 60°.
11. Find the slope of line with inclination $\frac{\pi}{2}$.

2 MARKS QUESTIONS

1. Show that the points (5, –1) and (–3, 4) lie on either side of the line $6x – 5y + 1 = 0$.
2. Show that the points (0, 0) and (1, –1) lie on the same side of the line $4x – 7y + 1 = 0$.
3. Determine the position of the points (0, 0) and (1, –1) with respect to the line $2x + 4y – 1 = 0$.
4. Find the distance between the parallel lines $4x – 3y – 2 = 0$ and $4x – 3y – 6 = 0$.
5. Find K so that the distance from (2, 3) to the line $8x + 15y + K = 0$ may be equal to 4 units.
6. Derive the equation of the line in one point form i.e., $y – y_1 = m(x – x_1)$. Geometrically, where m is the slope and $P(x_1, y_1)$ is the given point.
7. Find the value of a if the slope of the line joining the points (3, a) and (4, 3) is $\frac{7}{2}$.

8. Find the equation of the line joining the points (–1, –3) (6, 11).
9. Show that the points A(4, –2) B(2, –4) and C(7, 1) are collinear using slope method.
10. Find the points of intersection of lines $x + 5y + 4 = 0$ and $3x - 4y - 7 = 0$.
11. Write the equation of the line which has x intercept = 3 y intercept = 5.
12. If (3, a) lies on the line joining (1, –4) and (–2, 5) find a.
13. Find the equation of the line parallel to x axis and at distance of +7 from it.
14. Find the equation of the line passing through (4, 3) and with slope 2.
15. Find the equation of the line passing through (3, 5) and making an angle 45° with the positive x-axis.
16. Find the length of the perpendicular from (–3, 2) to the line $12x - 5y + 7 = 0$.

3 MARKS QUESTIONS

1. Derive slope intercept form of line $y = mx + C$. Also write the equation of passing through origin with slope m.
2. Find the distance between the parallel lines $5x + 12y - 19 = 0$ and $5x + 12y + 7 = 0$.
3. Find the equation of the line which passes through the point (–4, 5) and whose intercepts are equal in magnitude but opposite in sign.
4. Show that the line joining (2, –3) and (–5, 1) is parallel to the line joining (7, –1) and (0, 3).
5. Find the equation of the line passing through (2, –3) which cuts off intercepts on x and y axes which are in the ratio 3:4.
6. Find the euation of the line parallel to $2x + 3y + 1 = 0$ and passing through (–1, 1).
7. Find the equation of the line perpendicular to $3x - 2y + 1 = 0$ and passing through (1, –2).
8. Find K if the line $(K + 1)x + (2K + 3)y + 3 = 0$ and $2x - 5y + 1 = 0$ are perpendicular to each other.
9. Find the equation of the line through the point of intersection of and $2x - 5y = 1$ and $3x - 2y = 8$ and parallel to the line $2x + y = 3$.
10. Find the value of a if the lines $x - 2y = 1$, $2x + y = 7$ and $ax - 5y = 4$ are concurrent.
11. Derive equation of a line in two-point form.

4 MARKS QUESTIONS

1. Prove that the lines $x + y + 4 = 0$, $2x = 3y + 7$ and $3x + y = -6$ are concurrent. Also find the point of concurrency.
2. If the line $2x + 3y = -1$ cuts the x and y axis at A and B respectively. Find the area of the tirangle OAB.
3. Find the equation of line passing through the intersection of the line $2x + 3y = 5$, $7x - y = 6$ is perpendicular to the line $3x + 4y + 1 = 0$.

5 MARKS QUESTIONS

1. Find the equation of the medians of the triangle whose vertices are A(2, 3), B(–1, –4), C(5, –2).
2. Find the equation of the line passing through the point of intersection of $2x + 4y = 3$ and $x + 5y = 1$ and making equal positive intercepts on the cordinate axes.
3. Find equation of a line passing through the point (2, 2) such that the sum of its intercepts on the axes is equal to 9.
4. In what ratio is the line joining the points (2, 3) and (4, –5) is divided by the line joining (6, 8) and (–3, 2).
5. Find the equation of the line which passes through the intersection of the lines $x - 2y + 4 = 0$ and $4x - 3y + 1 = 0$ and is inclined at an angle 135° with the x-axis.
6. Find the foot of the perpendicular drawn from the point (–2, –1) on the line $3x + 2y - 5 = 0$.
7. Find the image of the point (2, 4) on the line $x + y - 10 = 0$.
8. Find the equations of the medians of the triangle formed by the points (–1, 3) (–3, 5) and (7, –9).
9. Find the reflection of the point P(2, 1) in the line $x + y = 5$.
10. Find the equation of the line passing through the points of intersection of points $2x + 3y - 7 = 0$ and $5x + 6y + 8 = 0$ and the point (4, 3).

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