

CHAPTER 10

STRAIGHT LINES

IMPROVEMENT 2018

1. a) Find the equation of the perpendicular bisector of the line joining the points $(0,0)$ and $(-3,4)$. (3)
- b) Find the coordinates of the point on the line $y = 3x + 2$ that is equidistant from $(0,0)$ and $(-3,4)$ (1)
2. a) Reduce the equation $x - y = 4$ into normal form. (3)
- b) Write the distance of this line from origin. (1)

IMPROVEMENT 2017

3. a) Slope of the line $2x + 3y - 6 = 0$ is (1)
 - i) $\frac{-2}{3}$
 - ii) $\frac{-3}{2}$
 - iii) 2
 - iv) 3
- b) Find the equation of the line perpendicular to $2x + 3y - 6 = 0$ and passing through $(-1,1)$. (3)
- c) Find the foot of the perpendicular from $(-1,1)$ to the line $2x + 3y - 6 = 0$. (2)

Or

- a) Slope of a line making an angle of 120° with positive direction of X - axis is (1)
 - i) $\frac{-1}{2}$
 - ii) $\frac{\sqrt{3}}{2}$
 - iii) $-\sqrt{3}$
 - iv) $-\frac{1}{\sqrt{3}}$

- b) Find the x and y intercepts of the line $3x - 4y + 10 = 0$. (2)
- c) Find the angle between the lines $y = \sqrt{3}x + 5$ and $\sqrt{3}y + x + 6 = 0$ (3)

MARCH 2017

4. a) The slope of the line passing through the points $(3,-2)$ and $(7,-2)$ is (1)
 - i) -1
 - ii) 2
 - iii) 0
 - iv) 1
- b) Reduce the equation $6x + 3y - 5 = 0$ into slope-intercept form and hence find its slope and y- intercept. (2)
- c) Find a point on the x- axis which is equidistant from the points $(7,6)$ and $(3,4)$. (2)

IMPROVEMENT 2016

5. a) Which is the slope of the line perpendicular to the line with slope $\frac{-3}{2}$? (1)
 - i) $\frac{-3}{2}$
 - ii) $\frac{-2}{3}$
 - iii) $\frac{3}{2}$
 - iv) $\frac{2}{3}$
- b) Find the equation of the line intersecting the x-axis at a distance of 3 units to the left of origin with slope -2 . (2)
- c) Assume that straight lines work as the plane mirror for a point, find the image of the point $(1,2)$ in the line $x - 3y + 4 = 0$. (3)

MARCH 2016

6. a) Which one of the following pair of straight lines are parallel?
 - i) $x - 2y - 4 = 0$; $2x - 3y - 4 = 0$

- ii) $x - 2y - 4 = 0$; $x - 2y - 5 = 0$
 iii) $2x - 3y - 8 = 0$; $3x - 3y - 8 = 0$
 iv) $2x - 3y - 8 = 0$; $3x - 2y - 8 = 0$ (1)

- b) Equation of a straight line is $3x - 4y + 10 = 0$.

Convert it into the intercept form and write the x- intercept and y – intercept. (2)

- c) Find the equation of the line perpendicular to the line $x - 7y + 5 = 0$ and having x-intercept 3. (3)

SEPTEMBER 2015

7. a) Slope of a line ' L_1 ' making an angle 135° with the positive direction of the x- axis is
 i) 1 ii) -1
 iii) $\sqrt{3}$ iv) $-\sqrt{3}$ (1)
- b) Find the equation of the line ' L_2 ' perpendicular to ' L_1 ' and passing through the point $(-2,3)$ (2)
- c) Find the equation of line passing through the intersection of $4x - y + 7 = 0$ and which is parallel to $5x + 4y - 20 = 0$ (3)

OR

- a) Slope of the line $L : 2x + 3y + 5 = 0$ is (1)
- i) $-\frac{2}{3}$ ii) $\frac{2}{3}$ iii) $-\frac{3}{2}$ iv) $\frac{3}{2}$
- b) Find the equation of the line L^1 parallel to L and passing through $(2,2)$. (2)
- c) Find the distance of the lines L and L^1 from the origin. Also find the distance between the lines L and L^1 . (3)

MARCH 2015

8. a) Find the equation of the line passing through the points $(3,-2)$ and $(-1,4)$. (2)
- b) Reduce the equation $\sqrt{3}x + y - 8 = 0$ into normal form. (2)
- c) If the angle between two lines is $\pi/4$ and slope of one of the lines is $\frac{1}{2}$, find the slope of the other line. (2)

IMPROVEMENT 2014

9. a) Find the equation of the line passing through the two points $(1,-1)$ and $(3,5)$. (2)
- b) Find the angle between the lines $y - \sqrt{3}x - 5 = 0$ and $\sqrt{3}y - x + 6 = 0$ (4)

MARCH 2014

10. a) Find the slope of the line passing through the point $(3,-2)$ and $(-1,4)$. (1)
- b) Find the distance of the point $(3,-5)$ from the line $3x - 4y - 26 = 0$. (2)
- c) Consider the equation of the line $3x - 4y + 10 = 0$. Find its:
 i) slope. (1)
 ii) x and y intercepts. (2)

IMPROVEMENT 2013

9. Consider the line joining the points $P(-4,1)$ and $Q(0,5)$.
 a) Write the coordinates of the midpoint of PQ . (1)
- b) Find the equation of the line passing through the midpoint of PQ and parallel to the line $3x - 4y + 2 = 0$. (2)

10. Consider the $x+3y-7=0$

- a) The slope of the line is (1)
- b) Find the image of the point (3,8) with respect to the given line. (2)

MARCH 2013

- 11. a) Find the slope of the line joining the points (2,2) and (5,3). (1)
- b) Find the equation of the line joining the points (2,2) and (5,3). (2)
- 12. a) If two lines are perpendicular, then the product of their slopes is (1)
- b) Find the equation of a line perpendicular to the line $x-2x+3=0$ and passing through the point (1,-2). (2)

IMPROVEMENT 2012

13. The vertices of $\triangle ABC$ are $A(2,1), B(-3,5)$ and $C(4,5)$.
- i) Write the co-ordinates of the midpoint of AC. (1)
 - ii) Find the equation of the median through the vertex B. (2)

MARCH 2012

14. The vertices of $\triangle ABC$ are $A(-2,3), B(2,-3)$ and $C(4,5)$.
- a) Find the slope of BC. (1)
 - b) Find the equation of the altitude of $\triangle ABC$ passing through A. (2)

MARCH 2011

15. Consider the straight line $3x+4y+8=0$.
- a) What is the slope of a line which is perpendicular to the given line? (1)
 - b) If the perpendicular line passes through (2,3), form its equation. (2)
 - c) Find the foot of the perpendicular drawn from (2,3) to the given line. (3)

IMPROVEMENT 2010

16. a) Find the slope of the line $\frac{x}{a} + \frac{x}{b} = 1$. (1)
- b) If the lines joining the points (0,0), (1,1) and (2,2), (4,y) are perpendicular, find y. (2)
17. a) Write the equation of y-axis. (1)
- b) Find the distance between the lines $8x+15y-5=0$ and $8x+15y+12=0$ (2)

MARCH 2010

18. i) Find the slope of the line joining (-2,6) and (4,8). (1)
- ii) Find the value of x if the above line is perpendicular to the line joining (8,12) and (x,24). (2)
19. i) Reduce the equation $3x+4y-12=0$ into intercept form. (1)
- ii) Find the distance of the above line from its origin. (1)
- iii) Find the distance of the above line from the line $6x+8y-18=0$. (1)

IMPROVEMENT 2009

20. Consider the points A(2,2) and B(5,3).
- i) Find the slope of the line through the points A and B. (1)
 - ii) Find the equation of the line passing through the points A and B. (1)
 - iii) Find the image of the point (1,2) in the line through A and B. (3)

MARCH 2009

21. a) Find the angle between the x-axis and the line joining (2,-1) and (4,-3). (1)
- b) Convert the equation of the line $2x - 3y + 6 = 0$ into intercept form. (1)
22. a) Find the distance between the pair of lines $4x - 3y - 9 = 0$ and $8x - 6y - 21 = 0$. (1)
- b) Find the distance of the point (3,-3) from the line $3x - 4y - 26 = 0$. (2)

IMPROVEMENT 2008

23. Consider the points A(6,2), B(3,-1) and C(-2,4)
- i) Find AB, BC and AC. (1)
 - ii) Show that $\triangle ABC$ is a right angled triangle. (1)
24. i) The point of concurrence of the medians of a triangle is called..... (1)
- ii) Show that the points (-1,-1), (2,3) and (8,11) are collinear. (2)
25. Consider the straight line passing through A(-2,6) and B(4,8).
- i) Find the slope of the straight line passing through A and B. (1)
 - ii) Prove that the straight line AB is perpendicular to $y + 3x = 2$. (2)