



MATHS

BOOKS - MAXIMUM PUBLICATION

STRAIGHT LINES

Example

1. Find the slope of the lines passing through the points

$(3,-2)$ and $(-1,4)$



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2. Find the slope of the lines passing through the points

$(4,-5)$ and $(2,1)$



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3. Find the slope of the lines passing through the points

$(0,-2)$ and $(4,3)$





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4. Find a point on the x-axis, which is equidistant from the points (7,6) and (3,4)



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5. Find the value of x for which the points (x,-1), (2,1) and (4,5) are collinear.



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6. Line through the points $(-2,6)$ and $(4,8)$ is perpendicular to the line through the points $(8,12)$ and $(x,24)$. Find the value of x .



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7. Find the equation the following lines satisfying the given conditions.

passing through the point $(-2,3)$ with slope -4 .



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8. Find the equation the following lines satisfying the given conditions.

passing through the point $(-4,3)$ with slope $\frac{1}{2}$.



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9. Find the equation the following lines satisfying the given conditions.

Line with y-intercept $-\frac{3}{2}$ and slope $\frac{1}{2}$



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10. Find the equation the following lines satisfying the given conditions.

Line with x-intercept -3 and slope -2.



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11. Find the equation the following lines satisfying the given conditions.

Line which makes intercepts -3 and 2 on the x- and y-axis respectively.



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12. Find the equation the following lines satisfying the given conditions.

perpendicular distance from origin is 5 units and the angle the perpendicular makes with the positive direction of x-axis is 30° .



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13. Find the equation the following lines satisfying the given conditions.

passing through the point $(-1,1)$ and $(2,-4)$.





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14. Find the equation the following lines satisfying the given conditions.

passing through the point $(1,-1)$ and $(3,5)$.



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15. Find the equation of the line passing through the point $(-3,5)$ and perpendicular to the line through the points $(2,5)$ and $(-3,6)$.



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16. Find the equation of the line that cut off equal intercepts on the coordinate axis and passes through the point (2,3)



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17. P(a,b) is the mid-point of a line segment between axis. Show that equation of the line is

$$\frac{x}{a} + \frac{y}{b} = 2$$



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18. Find the slope, x-intercept and y-intercept of the following lines.

$$3x - 4y + 10 = 0$$



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19. Find the slope, x-intercept and y-intercept of the following lines.

$$6x + 3y - 5 = 0$$



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20. Find the slope, x-intercept and y-intercept of the following lines.

$$4x - 3y = 6$$



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21. Find the distance between the parallel lines.

$$3x - 4y + 7 = 0 \text{ and } 3x - 4y + 5 = 0$$



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22. Find the distance between the parallel lines.

$$15x + 8y - 34 = 0 \text{ and } 30x + 16y + 62 = 0$$



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23. Find the distance between the given point and the line.

$$\text{Line } 3x - 4y - 26 = 0 \text{ and point } (3,-5)$$



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24. Find the distance between the given point and the line.

Line $12(x + 6) = 5(y - 2)$ and point $(-1,1)$



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25. Find the equation of the line parallel to the line $3x - 4y + 2 = 0$ and passing through the point $(-2,3)$.



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



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27. Find the new coordinates of point (3,-4) if the origin is shifted to (1,2) by a translation.



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28. Find the equation of the line passing through the point $(2,2)$ and cutting off intercepts on the axis whose sum is 9.



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29. The perpendicular from the origin to a line meets it at the point $(-2,9)$, find the equation of the line.



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30. Reduce the following into normal form.

$$\sqrt{3}x + y - 8 = 0$$



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31. Reduce the following into normal form.

$$3x + 3y - 1 = 0$$



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32. Find the angle between the given lines.

$$y - \sqrt{3}x - 5 = 0 \text{ and } \sqrt{3}y - x + 6 = 0$$



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33. Find the angle between the given lines.

$$3x - 2y + 9 = 0 \text{ and } 2x + y - 9 = 0$$



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34. Find the transformed equation of the straight line $2x - 3y + 5 = 0$, when the origin is shifted to the point $(3, -1)$ after translation of axes.



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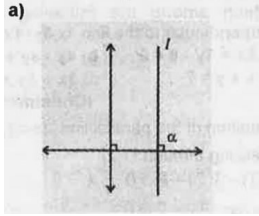
35. Find what the following equations become when the origin is shifted to the point (1,1)

$$x^2 + xy - 3y^2 - y + 2 = 0$$



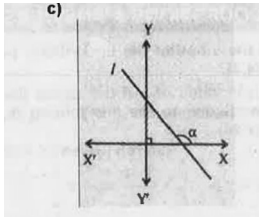
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36. Identify the figure in which the line has a positive slope.



A.

B. 



C.

D. 

Answer: B



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37. Find the x and y intercepts of the line

$$3x + 4y - 12 = 0$$



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38. Consider the line $4x - 3y + 12 = 0$

Find the equation of the line passing through the point (1,2) and parallel to the given line.



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39. Consider the line $4x - 3y + 12 = 0$

Which among the following lines is perpendicular to the line $4x - 3y + 12 = 0$

A. $2x + 3y - 8 = 0$

B. $4x - 3y + 5 = 0$

C. $x + y = 7$

D. $3x + 4y + 9 = 0$

Answer: D



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40. Find the slope of the line joining $(-2,6)$ and $(4,8)$.



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41. Write the equation of y-axis.



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42. Find the distance between the lines

$$8x + 15y - 5 = 0 \text{ and } 8x + 15y + 12 = 0$$



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43. The vertices of $\triangle ABC$ are $A(2,1)$, $B(-3,5)$ and $C(4,5)$.

Write the coordinates of the midpoint of AC .



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44. The vertices of $\triangle ABC$ are $A(2,1)$, $B(-3,5)$ and $C(4,5)$.

Find the equation of the median through the vertex B.



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45. Find the slope of the straight lines

$$\sqrt{3}x + y = 1, x + \sqrt{3}y = 1$$

Also find the angles between them.



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46. The vertices of $\triangle ABC$ are $A(-2,3)$, $B(2,-3)$ and $C(4,5)$.

Find the slope of BC .



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47. The vertices of $\triangle ABC$ are $A(-2,3)$, $B(2,-3)$ and $C(4,5)$.

Find the equation of the altitude of $\triangle ABC$ passing through A .



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48. Find the slope of the line joining the points $(2,2)$ and $(5,3)$.



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49. Find the equation of the line joining the points $(2,2)$ and $(5,3)$.



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50. If two lines are perpendicular, then the product of their slopes is.....



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51. Find the equation of the line parallel to $x - 2y + 3 = 0$ and passing through the point (1,-2).



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52. Consider the line joining the points $P(-4,1)$ and $Q(0,5)$

Write the coordinate of the line passing through the midpoint of PQ .



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53. Consider the line joining the points $P(-4,1)$ and $Q(0,5)$

Find the equation of the line passing through

the midpoint of PQ and parallel to the line

$$3x - 4y + 2 = 0$$



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54. Find the slope of the line $y = 2x - 3$



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55. Find equation of the line which makes intercepts -3 and 2 on the X and Y axes respectively. Find its slope.



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56. Consider the lines $2x - 3y + 9 = 0$ and

$$2x - 3y + 7 = 0$$

Find the distance from the origin to these two lines.



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57. Consider the lines $2x - 3y + 9 = 0$ and

$2x - 3y + 7 = 0$ Find the distance between

these two lines.



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58. Find the slope of the line $\frac{x}{a} + \frac{y}{b} = 1$



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59. If the lines joining the points and are perpendicular $(0,0),(1,1)$ and $(2,2),(4,y)$ find y .



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60. Find the slope of the line through the points $(5,-1)$ and $(6,4)$.



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61. Find the equation of the line through $(5,-1)$ and $(6,4)$.



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62. Find the slope of the line joining the points $(3,-1)$ and $(4,-2)$.



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63. Find the angle between the positive x -axis and the line joining the points $(3,-1)$ and $(4,-2)$.



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64. Find the equation of the line joining the points (3,-1) and (4,-2)



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65. Find the point of intersection of the lines

$$2x + y - 3 = 0, 3x - y - 2 = 0$$



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

The slope of the line is.....



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

Find the image of the point $(3,8)$ with respect to the given line.



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68. Find the slope of the line

$$3x - 4y + 10 = 0$$



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69. Find the equation of the line passing through the points (1,3) and (5,6).



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70. Find the equation of the line parallel to $x - 2y + 3 = 0$ and passing through the point $(1,-2)$.



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71. Find the slope of the line passing through the points $(3,-2)$ and $(-1,4)$.



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72. Find the distance of the point $(3,-5)$ from the line $3x - 4y - 26 = 0$



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73. Consider the equation of the line

$$3x - 4y + 10 = 0$$

Find its

Slope.



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74. Consider the equation of the line

$$3x - 4y + 10 = 0$$

Find its

x and y intercepts.



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75. Find the equation of the line passing through (4,2) with a slope 2.



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76. Find the equation of the line passing through the two points (1,-1) and (3,5).



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77. Find the angles between the lines

$$y - \sqrt{3}x - 5 = 0 \text{ and } \sqrt{3}y - x + 6 = 0$$



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78. Slope of the line $L: 2x + 3y + 5 = 0$ is.

A. $\frac{2}{3}$

B. $-\frac{2}{3}$

C. $-\frac{3}{2}$

D. $\frac{3}{2}$

Answer: B



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79. The slope of the line passing through the points (3,-2) and (7,-2) is.....

A. -1

B. 2

C. 0

D. 1

Answer: C



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80. Reduce the equation $6x + 3y - 5 = 0$ into slope intercept form and hence find its slope and y-intercept



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81. Find the point on the x-axis which equidistant from the points (7,6) and (3,4)



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82. Reduce the equation $3x + 4y - 12 = 0$ into intercept form.



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83. Consider the straight line $3x + 4y + 8 = 0$

What is the slope of the line which is perpendicular to the given line.



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84. Consider the straight line

$$3x + 4y + 8 = 0$$

if the perpendicular lines passes through (2,3)

from its equation.



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85. Consider the straight line $3x + 4y + 8 = 0$

Find the foot of the perpendicular drawn from
(2,3) to the given line.



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86. Find the equation of the line passing
through the points (3,-2) and (-1,4).



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87. Reduce the equation $\sqrt{3}x + y - 8 = 0$ into normal form.



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88. If the angle between two lines is $\frac{\pi}{4}$ and slope of one of the lines is $\frac{1}{2}$, find the slope of the other line.



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89. The slope of a line ' L_1 ' making an angle 135° with direction of the positive direction of x-axis is.....

A. 1

B. -1

C. $\sqrt{3}$

D. $-\sqrt{3}$

Answer: A



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90. Find the equation of a line passing through the intersection of $x + 2y - 3 = 0$ and $4x - y + 7 = 0$ and which is parallel to $5x + 4y - 20 = 0$.



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91. Which one of the following pair of straight lines are parallel?

A. $x - 2y - 4 = 0, 2x - 3y - 4 = 0$

B. $x - 2y - 4 = 0, x - 2y - 5 = 0$

C. $2x - 3y - 8 = 0, 3x - 3y - 8 = 0$

D. $2x - 3y - 8 = 0, 3x - 2y - 8 = 0$

Answer: B



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92. Consider the equation of the line

$$3x - 4y + 10 = 0$$

Find its

x and y intercepts.



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



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94. Which is the slope of the line perpendicular to the line with slope $-\frac{3}{2}$?

A. $\frac{-3}{2}$

B. $\frac{-2}{3}$

C. $\frac{3}{2}$

D. $\frac{2}{3}$

Answer: D



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95. Find the equation of the line intersecting the x-axis at a distance of 3 units to the left of origin with slope -2.



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96. Assume that straight lines work as the plane mirror for a point, find the image of the point $(1,2)$ in the line $x - 3y + 4 = 0$



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