MATHS

BOOKS - JBD PUBLICATION

STRAIGHT LINES

Exercise

1. The equation of straight line passing through (3,5) and slope $\frac{2}{3}$ is:

A. 2x-3y+9=0

B. 2x-3y-5=0

C. 3x-2y+5=0

D. 3x-2y-5=0

Answer:

Watch Video Solution

2. The slope of the line passing through the points (3,-2) and (-1,4) is:

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

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

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

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

Answer:

Watch Video Solution

3. The slope of the line joining points (-4,5) and (0,7) is

A. $\frac{1}{2}$

B. 2

C. 0

D. $-\frac{1}{2}$

Answer:

Watch Video Solution

4. The length of perpendiuclar from (0,0) to the line 3x+4y=15 is:

A. 15

B. 3

C. 4

D. $\frac{15}{7}$

Answer:

Watch Video Solution

5. If the points $A(x_1, y_1), B(x_2, y_2)$ and $C(x_3, y_3)$ are collinear, then area of triangle ABC is:

A. 0

B. 1

C. -1

D. none of these

Answer:

Watch Video Solution

6. The equation of line which makes equal intercepts on axis and passes through the point (2,3) is:

A. $x+y=5$

B. $x-y=5$

C. $x-y+5=0$

D. $x+y+5=0$

Answer:

Watch Video Solution

7. Distance of the point (-1,1) form the line 12x-5y+82=0 is:

A. 4

B. 5

C. 8

D. 6

Answer:

Watch Video Solution

8. The point on the axis of y which its equidistant from (-1, 2) and (3, 4), is

A. (0,5)

B. (5,0)

C. (-5,0)

D. none of these

Answer:

Watch Video Solution

9. The slope of line which cuts off intercepts of equal lengths on the axis is:

A. -1

B. 1

C. 2

D. -2

Answer:

 Watch Video Solution

10. The ratio in which the line 3x+4y=-2 divides the distance between the lines 3x+4y+5=0 and 3x+4y-5=0 is:

A. $2:1$

B. $2:3$

C. $3:7$

D. none of these

Answer:

Watch Video Solution

11. 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. $3:7$

D. none of these

Answer:

Watch Video Solution

12. A line passes through the point (2,2) and is perpendicular to the line $3x + y = 3$, then its y - intercept is

A. $\frac{1}{3}$

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

C. 1

D. $\frac{4}{3}$

Answer:

Watch Video Solution

13. The line segment joining the points (1,2) and (-2,1) is divided by the line 3x+4y=7 in the ratio:

A. $4:9$

B. $9:4$

C. $2:3$

D. none of these

Answer:

Watch Video Solution

14. The two lines $ax+by=c$ and $a'x+b'y=c'$ are perpendicular if

A. $ab'+a'b=0$

B. $aa'+b'b=0$

C. $ab+a'b'=0$

D. none of these

Answer:

Watch Video Solution

15. The equation of the line thruogh (1,-2) and which makes equal intercepts on the axis are:

A. x+y-1=0

B. x-y-1=0

C. x+Y+1=0

D. none of these

Answer:

Watch Video Solution

16. The lines x+(k-1)y+1=0 and $2x + k^2y - 1 = 0$ are at right angles if

A. k=1

B. kgt1

C. k=-1

D. none of these

Answer:

Watch Video Solution

17. The slope of line which cuts off intercepts of equal lengths on the axis is:

A. -1

B. -2

C. 0

D. none of these

Answer:

 Watch Video Solution

18. A point equidistant from the lines $4x+3y+10=0$, $5x-12y+26=0$ and $7x+24y-50=0$ is:

A. (1,1)

B. (0,0)

C. (0,1)

D. none of these

Answer:

 Watch Video Solution

19. The area of a triangle with vertices at (-4,-1), (1,2) and (4,-3) is:

A. 17

B. 16

C. 15

D. none of these

Answer:

Watch Video Solution

20. If p be the length of the perpendicular from the origin on the line $\frac{x}{a} + \frac{y}{b} = 1$, then

A. $p^2 = a^2 + b^2$

B. $p^2 = \frac{1}{a^2} + \frac{1}{b^2}$

C. $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$

D. none of these

Answer:

Watch Video Solution

21. The angle between the lines $2x - y + 3 = 0$ and $x + 2y + 3 = 0$ is

A. 30°

B. 60°

C. 90°

D. none of these

Answer:

Watch Video Solution

22. The value of λ for which the lines 3x+4y=5, 5x+4y=4 and $\lambda x + 4y = 6$ meet at a point is:

A. 2

B. 1

C. 3

D. none of these

Answer:

Watch Video Solution

23. The centroid of a triangle is (2,7) and two of its vertices are (4,8) and (-2,6), then third vertex is:

A. (4,7)

B. (7,4)

C. (4,4)

D. none of these

Answer:

Watch Video Solution

24. The mid point of the line segment joining (2x,4) and (-2,3y) is (1,2x+1), then value of x and y are:

A. 2,2

B. 1,1

C. 3,-2

D. none of these

Answer:

 Watch Video Solution

25. The value of x such that the points (8,1),(x,-4) and (2,-5) are collinear is:

A. 0

B. 3

C. 5

D. none of these

Answer:

Watch Video Solution

26. The points (3,2),(0,5),(-3,2) and (0,-1) are vertices of:

A. a rectangle

B. a rhombus

C. a square

D. none of these

Answer:

Watch Video Solution

27. Two vertices of an equilateral triangle are (0, 0) and $\left(0, 2\sqrt{3}\right)$. Find the third vertex.

A. $\left(-2, \sqrt{2}\right)$

B. $\left(-3, \sqrt{3}\right)$

C. $\left(-3, \sqrt{2}\right)$

D. none of these

Answer:

Watch Video Solution

28. The lines x-y-6=0, 4x-3y-20=0 and 6x+5y+8=0 are:

A. perpendicular

B. concurrent

C. parallel

D. none of these

Answer:

 Watch Video Solution

29. The three striaght lines $ax+by=c$, $bx+cy=a$ and $cx+ay=b$ are collinear if:

A. $a+b-c=0$

B. $a-b+c=0$

C. $a+b+c=0$

D. none of these

Answer:

Watch Video Solution

30. Two sides of a square lie on the lines x+y-1=0 and x+y+2 then its area is:

A. $\frac{7}{2}$

B. $\frac{9}{2}$

C. $\frac{11}{2}$

D. none of these

Answer:

Watch Video Solution

Example

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

Watch Video Solution

2. Find slope of the line that makes angle $\frac{\pi}{6}$

Watch Video Solution

3. Find slope of the line that makes angle $\frac{2\pi}{3}$ with the positive direction of x-axis.

Watch Video Solution

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

Watch Video Solution

5. A line passes through (x_1, y_1) and (h,k). If slope of the line is m, show that $k - y_1 = m(h - x_1)$.

Watch Video Solution

6. Find the value of k for which the line

$$(k-3)x-\left(4-k^2\right)y+k^2-7k+6=0.$$

(a) parallel to x-axis (b) parallel to y-axis.

Watch Video Solution

7. Find the value of k for which the line

$$(k-3)x-\left(4-k^2\right)y+k^2-7k+6=0.$$

(a) parallel to x-axis (b) parallel to y-axis.

Watch Video Solution

8. Find the values of k for which the line $(k-3)x-\left(4-k^2\right)y+k^2-7k+6=0$ is passing through the origin.

Watch Video Solution

9. Find the equation of the straight line which is parallel to the line 2x+3y-5=0 and has y-intercept equal to -4.

Watch Video Solution

10. Find the equation of the straight line which is parallel to the line $2x-3y+7=0$ and passes through the point A(1,-2).

Watch Video Solution

11. Find the equation of the line which satisfy the given conditions. Passing through (1,1) and (5,4)

Watch Video Solution

12. Find the equation of a line that passes through the point (3,-2) and cuts off intecepts on the two axes which are equal in magnitude and opposite in sign.

Watch Video Solution

13. Reduce the following equations into slope intercept form and find their slopes and y intercepts.

$2x+3y-7=0$

Watch Video Solution

14. Reduce the following equations into slope-intercept form and find their slopes and the y-intercepts.

$x + 7y = 0$

Watch Video Solution

15. Reduce the following equations into intercept form and find their intercepts on the axes.

$3x + 2y - 12 = 0$

Watch Video Solution

16. Reduce the following equations into intercept form and find their intercepts on the axes:

7x-8y=6

Watch Video Solution

17. Prove that the line through the point (x_1, y_1) and parallel to the line $Ax + By + C = 0$ is $A(x - x_1) + B(y - y_1) = 0$.

Watch Video Solution

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

Watch Video Solution

19. Find the equation of the line through point (5,-2) and perpendicular to line 2x+3y-7=0.

Watch Video Solution

20. Find the equation of line perpendicular to x - 2y +3=0 and passing through the point (3,-2) .

Watch Video Solution

21. Without using the pythagorus, show that the points (4, 4), (3, 5) and (-1, -1) are the vertices of a right angled triangle.

Watch Video Solution

22. The slope of a line is double of the slope of another line. If tangent of the angle between them is $\frac{1}{3}$, find the slopes of the line.

Watch Video Solution

23. A line perpendicular to the line-segment joining the points (1, 0) and (2, 3) divides it the ratio 1 : n. Find the equation of the line.

Watch Video Solution

24. Find the equation of the line which satisfying the given conditions:

passing through $\left(2, 2\sqrt{3}\right)$ and inclined with the x-axis at an angle of 75°.

Watch Video Solution

25. Find the equation of the right bisector of the line segment joining the points (3, 4) and (-1, 2).

Watch Video Solution

26. Be using the concept of equation of a line prove that the three points (3, 0), (-2, -2) and (8, 2) are collinear.

Watch Video Solution

27. The owner of a milk store finds that, he can sell 980 litres of milk each week at Rs. 14/litre and 1220

litres of milk each week at Rs.16/litre. Assuming linear relationship between selling price and demand, how many litres could he sell weekly at Rs. 17/litre?

Watch Video Solution

28. Find the equations of the lines passing through the point (2, 2) such that the sum of their intercepts on the axes is 9.

Watch Video Solution

29. P(a,b) is the mid-point of a line segment between axes. Show that the equation of the line is $\frac{x}{a}+\frac{y}{b}=2$.

Watch Video Solution

30. Find the area of the triangle formed by the lines y-x=0, x+y=0 and x-k=0.

Watch Video Solution

31. The line 2x-3y=4 is perpendicular bisector of the line AB. If the coordinates of A are (-3,1). Fiind the coordinates of B.

Watch Video Solution

32. If the lines $y = 3x + 1$ and $2y = x + 3$ are equally inclined to the line $y = mx + 4$, find the value of m.

Watch Video Solution

33. Find the coordinates of a point on the x-axis whose distance from the line 3x-4y-2=0 is equal to 2.

Watch Video Solution

34. If p and q are the lengths of perpendicular from origin to the lines $x\cos\theta - y\sin\theta = k\cos 2\theta$ and $x\sec\theta + y\text{cosec}\theta = k$ respectively. Prove that $p^2 + 4q^2 = k^2$.

Watch Video Solution

35. Find the equation of the line through the intersection of lines $3x + 4y = 7$ and $x - y + 2 = 0$ and whose slope is 5.

Watch Video Solution

36. Find the equation of the line passing through the intersection of the lines 2x+3y-4=0 and x-5y+7=0 that has its x-intercept equal to -4.

Watch Video Solution

37. Find the equation of the line passing through the point of intersection of the lines $4x + 7y - 3 = 0, 2x - 3y + 1 = 0$ that has equal intercepts on the axes.

Watch Video Solution

38. Show that the equation of the line passing through the point $\left(a\cos^3\theta, a\sin^3\theta\right)$ and perpendicular to the line

Watch Video Solution

39. A ray of light passes through the point (1, 2) reflects on the x-axis at a point A and the reflected ray passes through the point (5, 3). Find the coordinates of A.

Watch Video Solution