NCERT Solutions Class 11 Maths
Chapter 9: Straight Lines
Miscellaneous Exercise on Chapter 9

Document Information:
Class: 11 | **Subject:** Mathematics | **Chapter:** 9 | **Exercise:** misc
Total Questions: 20 | **Academic Year:** 2025-26
Source: www.ncertbooks.net | **Generated:** February 21, 2026

Complete Solutions

Question 1

QUESTION

Find the values of k for which the line (k-3)x - (4-k^2)y + k^2 - 7k + 6 = 0 is:

(a) parallel to the x-axis,
(b) parallel to the y-axis,
(c) passing through the origin.

ANSWER

(a) 3

(b) ± 2

(c) 6 or 1

Question 2

QUESTION

Find the equations of the lines which cut off intercepts on the axes whose sum and product are 1 and −6 respectively.

ANSWER

2x - 3y = 6, -3x + 2y = 6

Question 3

QUESTION

What are the points on the y-axis whose distance from the line (x)/(3) + (y)/(4) = 1 is 4 units?

ANSWER

(0, -(8)/(3)), (0, (32)/(3))

Question 4

QUESTION

Find perpendicular distance from the origin to the line joining the points (\cosθ, \sinθ) and (\cos\phi, \sin\phi).

ANSWER

\left| \cos(\phi - θ)/(2) \right|

Question 5

QUESTION

Find the equation of the line parallel to y-axis and drawn through the point of intersection of the lines x - 7y + 5 = 0 and 3x + y = 0.

ANSWER

x = -(5)/(22)

Question 6

QUESTION

Find the equation of a line drawn perpendicular to the line (x)/(4) + (y)/(6) = 1 through the point where it meets the y-axis.

ANSWER

2x - 3y + 18 = 0

Question 7

QUESTION

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

ANSWER

k^2 square units

Question 8

QUESTION

Find the value of p so that the three lines 3x + y - 2 = 0, px + 2y - 3 = 0 and 2x - y - 3 = 0 may intersect at one point.

ANSWER

5

Question 10

QUESTION

Find the equation of the lines through the point (3,2) which make an angle of 45° with the line x - 2y = 3.

ANSWER

$3x - y = 7, \quad x + 3y = 9$

Question 11

QUESTION

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

ANSWER

$13x + 13y = 6$

Question 12

QUESTION

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

ANSWER

$2x + y = 5$

Question 13

QUESTION

In what ratio is the line joining (-1,1) and (5,7) divided by the line x + y = 4?

ANSWER

1 : 2

Question 14

QUESTION

Find the distance of the line 4x + 7y + 5 = 0 from the point (1,2) along the line 2x - y = 0.

ANSWER

23√518 units

Question 15

QUESTION

Find the direction in which a straight line must be drawn through the point (-1,2) so that its point of intersection with the line x + y = 4 is at a distance of 3 units from this point.

ANSWER

The line is parallel to x-axis or parallel to y-axis.

Question 16

QUESTION

The hypotenuse of a right-angled triangle has its ends at (1,3) and (-4,1). Find the equations of the legs of the triangle which are parallel to the axes.

ANSWER

$x = 1, y = 1$ or $x = -4, y = 3$

Question 17

QUESTION

Find the image of the point (3,8) with respect to the line $x + 3y = 7$ assuming the line to be a plane mirror.

ANSWER

$(-1, -4)$

Question 18

QUESTION

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

ANSWER

$1 \pm 5\sqrt{27}$

Question 20

QUESTION

Find the equation of the line which is equidistant from the parallel lines 9x + 6y - 7 = 0 and 3x + 2y + 6 = 0.

ANSWER

18x + 12y + 11 = 0

Question 21

QUESTION

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

ANSWER

\left((13)/(5), 0\right)

Question 23

QUESTION

A person standing at the junction of two straight paths represented by 2x - 3y + 4 = 0 and 3x + 4y - 5 = 0 wants to reach the path whose equation is 6x - 7y + 8 = 0 in the least time. Find the equation of the path that he should follow.

ANSWER

119x + 102y = 125

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