

The equation of a straight line when the coordinates of two points are given in the coordinate plane

좌표평면에서 두 점의 좌표가 주어졌을 때의 직선의 방정식

(The equation of a straight line when the coordinates of two points are given in the coordinate plane)

The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End

The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End

(x_1, y_1)



The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End

(x_2, y_2)



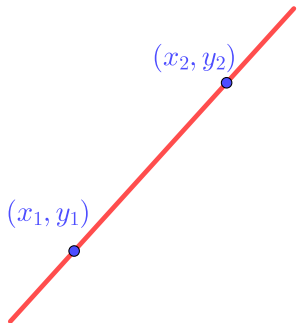
(x_1, y_1)



The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

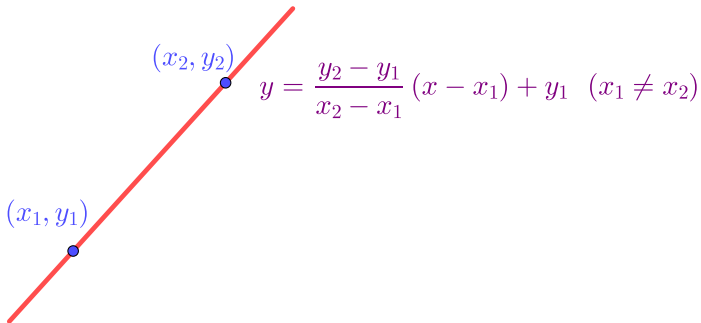
▶ End



The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

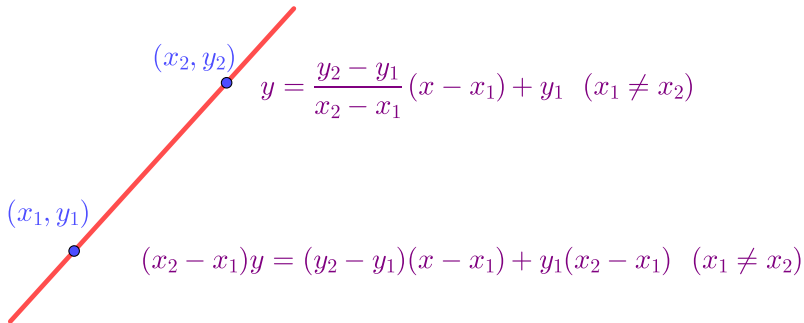
▶ End



The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

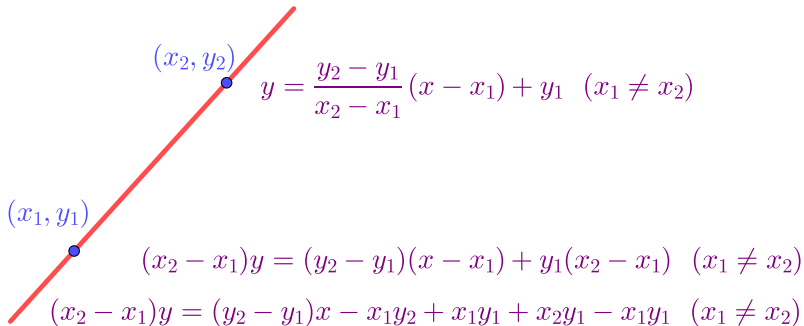
▶ End



The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

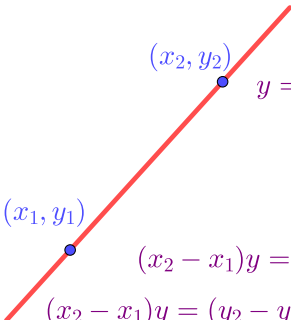
▶ End



The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End



The diagram shows a red line passing through two points, (x_1, y_1) and (x_2, y_2) . The point (x_2, y_2) is higher and further to the right than (x_1, y_1) . The line has a positive slope. The equation of the line is given as $y = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1) + y_1$ for $x_1 \neq x_2$.

$$y = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1) + y_1 \quad (x_1 \neq x_2)$$
$$(x_2 - x_1)y = (y_2 - y_1)(x - x_1) + y_1(x_2 - x_1) \quad (x_1 \neq x_2)$$
$$(x_2 - x_1)y = (y_2 - y_1)x - x_1y_2 + x_1y_1 + x_2y_1 - x_1y_1 \quad (x_1 \neq x_2)$$
$$(x_2 - x_1)y = (y_2 - y_1)x - (x_1y_2 - x_2y_1) \quad (x_1 \neq x_2)$$

The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End

(x_2, y_2)

$$y = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1) + y_1 \quad (x_1 \neq x_2)$$

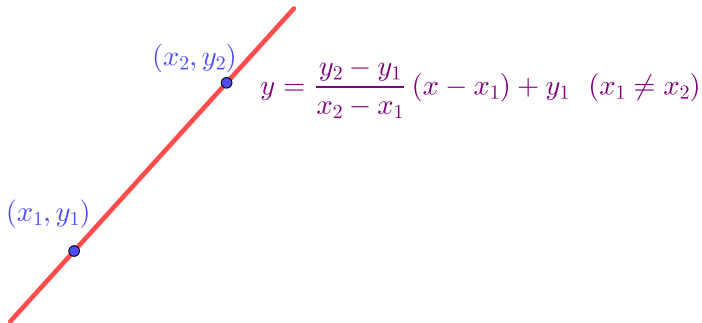
(x_1, y_1)

$$(x_2 - x_1)y = (y_2 - y_1)(x - x_1) + y_1(x_2 - x_1) \quad (x_1 \neq x_2)$$
$$(x_2 - x_1)y = (y_2 - y_1)x - x_1y_2 + x_1y_1 + x_2y_1 - x_1y_1 \quad (x_1 \neq x_2)$$
$$(x_2 - x_1)y = (y_2 - y_1)x - (x_1y_2 - x_2y_1) \quad (x_1 \neq x_2)$$
$$(y_2 - y_1)x - (x_2 - x_1)y - (x_1y_2 - x_2y_1) = 0 \quad (x_1 \neq x_2)$$

The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End

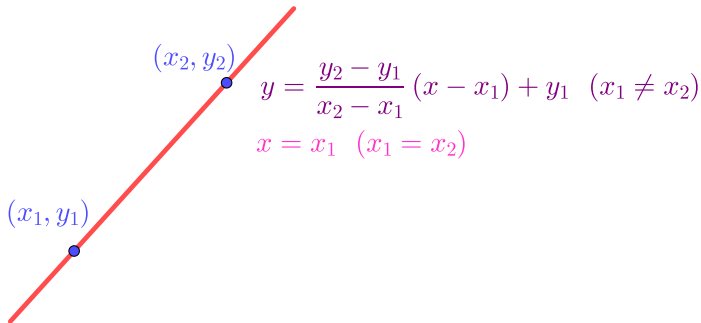


$$(y_2 - y_1)x - (x_2 - x_1)y - (x_1y_2 - x_2y_1) = 0 \quad (x_1 \neq x_2)$$

The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End

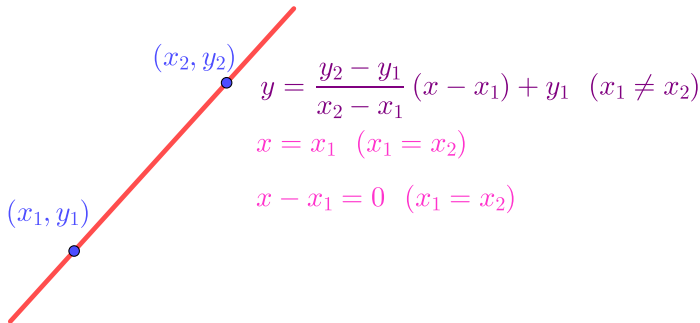


$$(y_2 - y_1)x - (x_2 - x_1)y - (x_1y_2 - x_2y_1) = 0 \quad (x_1 \neq x_2)$$

The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End

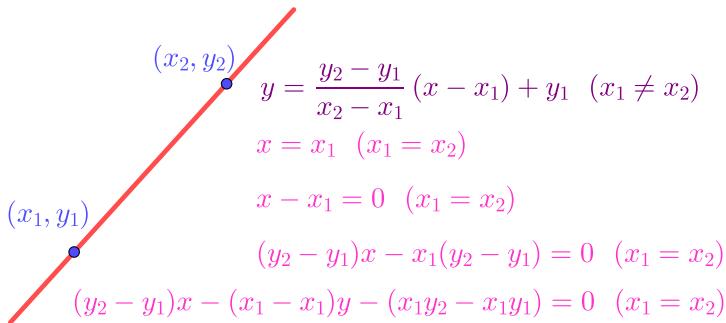


$$(y_2 - y_1)x - (x_2 - x_1)y - (x_1y_2 - x_2y_1) = 0 \quad (x_1 \neq x_2)$$

The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End

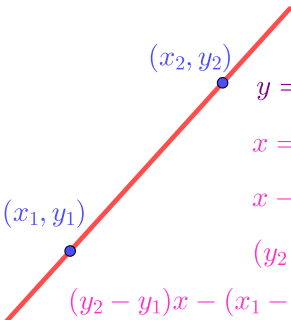


$$(y_2 - y_1)x - (x_2 - x_1)y - (x_1y_2 - x_2y_1) = 0 \quad (x_1 \neq x_2)$$

The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End



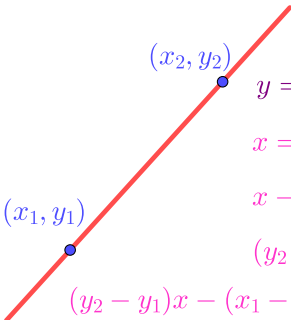
The diagram shows a red line passing through two points, (x_1, y_1) and (x_2, y_2) , which are marked with blue dots. The line is oriented diagonally from the bottom-left to the top-right.

$$y = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1) + y_1 \quad (x_1 \neq x_2)$$
$$x = x_1 \quad (x_1 = x_2)$$
$$x - x_1 = 0 \quad (x_1 = x_2)$$
$$(y_2 - y_1)x - x_1(y_2 - y_1) = 0 \quad (x_1 = x_2)$$
$$(y_2 - y_1)x - (x_1 - x_1)y - (x_1y_2 - x_1y_1) = 0 \quad (x_1 = x_2)$$
$$(y_2 - y_1)x - (x_2 - x_1)y - (x_1y_2 - x_2y_1) = 0 \quad (x_1 = x_2)$$
$$(y_2 - y_1)x - (x_2 - x_1)y - (x_1y_2 - x_2y_1) = 0 \quad (x_1 \neq x_2)$$

The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End



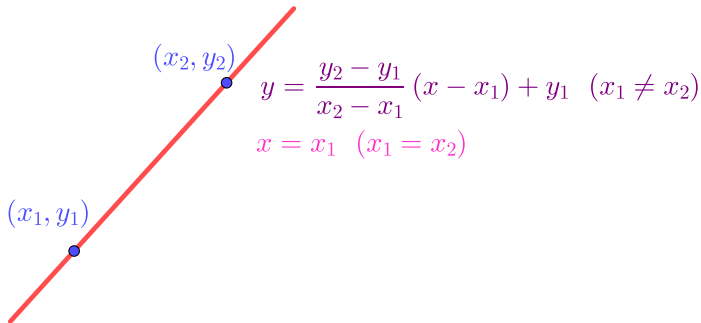
The diagram shows a red line in a coordinate plane. Two points are marked on the line with blue dots. The lower point is labeled (x_1, y_1) and the upper point is labeled (x_2, y_2) . The line has a positive slope.

$$y = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1) + y_1 \quad (x_1 \neq x_2)$$
$$x = x_1 \quad (x_1 = x_2)$$
$$x - x_1 = 0 \quad (x_1 = x_2)$$
$$(y_2 - y_1)x - x_1(y_2 - y_1) = 0 \quad (x_1 = x_2)$$
$$(y_2 - y_1)x - (x_1 - x_1)y - (x_1y_2 - x_1y_1) = 0 \quad (x_1 = x_2)$$
$$(y_2 - y_1)x - (x_2 - x_1)y - (x_1y_2 - x_2y_1) = 0 \quad (x_1 = x_2)$$
$$(y_2 - y_1)x - (x_2 - x_1)y - (x_1y_2 - x_2y_1) = 0$$

The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End

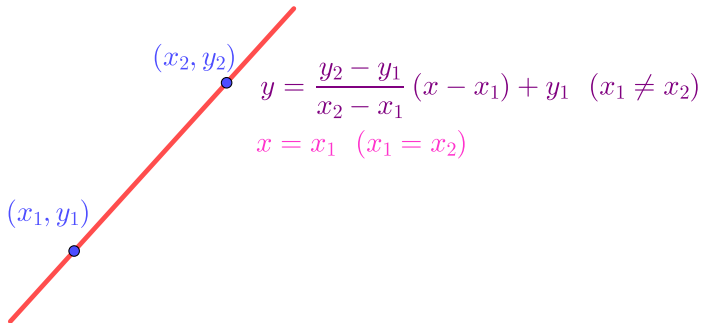


$$(y_2 - y_1)x - (x_2 - x_1)y - (x_1y_2 - x_2y_1) = 0$$

The equation of a straight line when the coordinates of two points are given in the coordinate plane

▶ Start

▶ End



$$\therefore (y_2 - y_1)x - (x_2 - x_1)y - (x_1y_2 - x_2y_1) = 0$$

The equation of a straight line when the coordinates of two points are given in the coordinate plane

Github:

<https://min7014.github.io/math20210831001.html>

Click or paste URL into the URL search bar,
and you can see a picture moving.