

MATH 230 Find an Equation for a Line

How do we find an equation for a line if we know two points on the line?

Example 1: Find an equation for the line passing through the points (3, 15) and (8, 35)

First we determine the slope of the line.

Δx	x	y	Δy
	3	15	
	8	35	

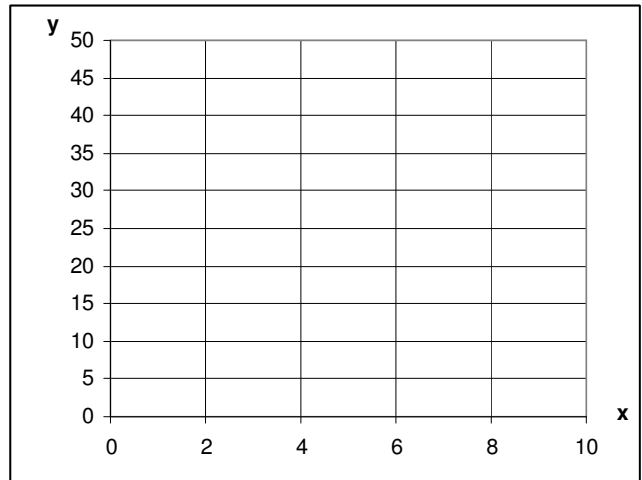
In this case the slope $m = \frac{\Delta y}{\Delta x} = \underline{\hspace{2cm}}$.

So, our equation has the form $y = \underline{\hspace{1cm}}x + b$

Where b is the y-intercept. We find the value of b using one of the data points as follows.

If $x = 8$, $y = 35$. So, $35 = \underline{\hspace{1cm}} \cdot (8) + b$. Hence $b = \underline{\hspace{1cm}}$, and the equation we seek is $\underline{\hspace{3cm}}$.

Graph the line on the coordinate system above.



Example 2. Find the equation of the line passing through the points (5, 40) and (10, 30).