

Linear Relations in Equation Form ($y=mx+b$)

Learning Goal:

By the end of today, I will be able to determine the equation of a line when given:

- (i) a table of values
- (ii) a graph of the line
- (iii) any two points on the line
- (iv) the slope and ANY point on the line
- (v) algebraically

The equation of a line is given by:

$$y = mx + b$$

where "m" is the slope (roc) and "b" is the y-intercept.

Determine the equation of a line with the following table of values.

x	y
-2	4
-1	7
0	10
1	13
2	16
3	19

F.D.

Slope (m):

Y intercept (b)

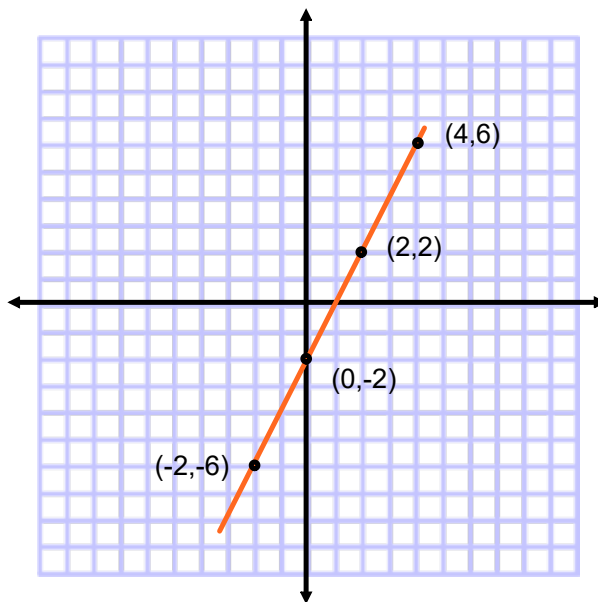
Equation: $y = mx + b$

Determine the equation of the line for the following graph:

Slope (m):

Y intercept (b)

Equation: $y = mx + b$



Learning Goal:

By the end of today, I will be able to determine the equation of a line when given:

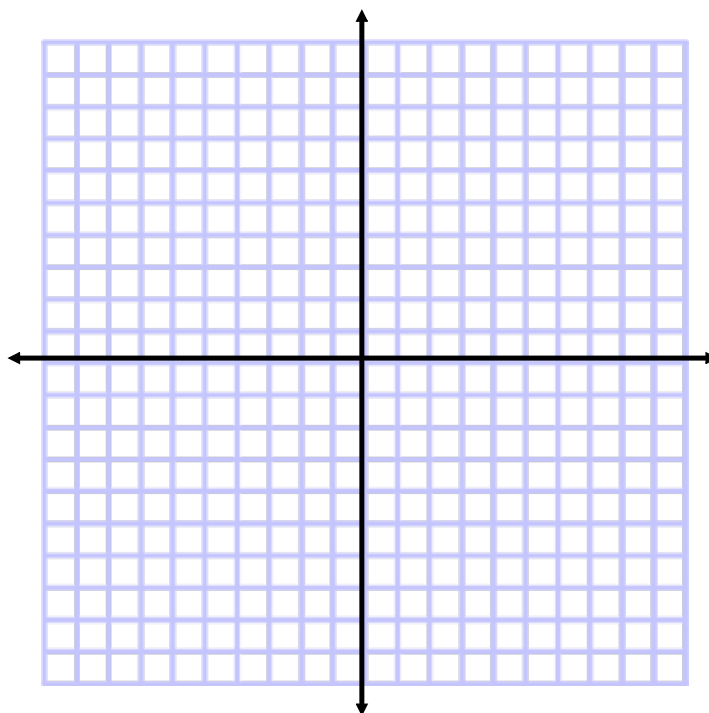
- (i) a table of values
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- (iv) the slope and ANY point on the line
- (v) algebraically

Determine the equation of the line that has a slope of 2 and passes through $(-4,-6)$.

Slope (m):

Y intercept (b)

Equation: $y = mx + b$

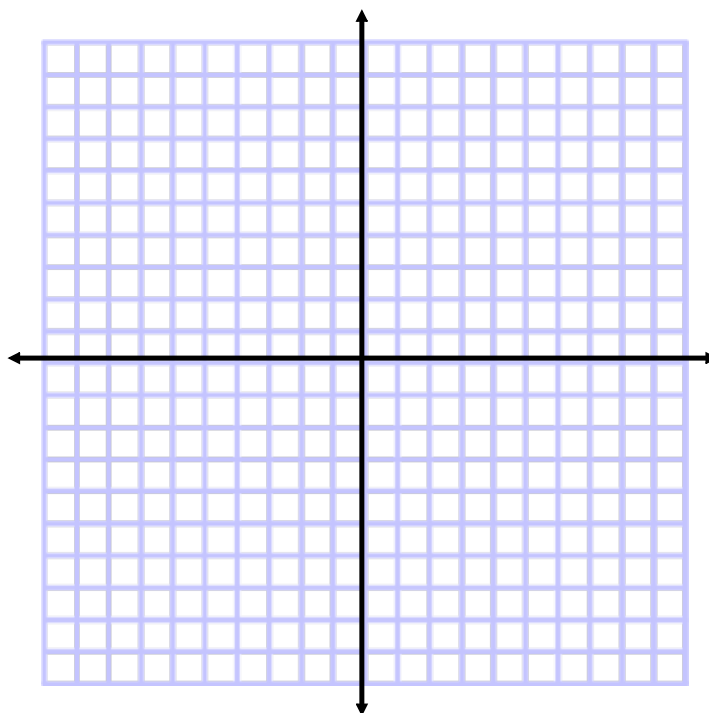


Determine the equation of the line that has a slope of -2 and passes through (-3,8).

Slope (m):

Y intercept (b)

Equation: $y = mx + b$



Equation of a Line - Algebraically - 4 Steps

To find the equation of a line, we need TWO things:

1. the **slope** of the line
2. *any point* on the line

Determine the equation of the line that has a slope of -2 and passes through (-3,8).

1. write the equation of a line
2. sub in the slope (m)
3. sub in the point (x,y) and solve for "b"
4. write the equation of the line with both the "m" and "b" values

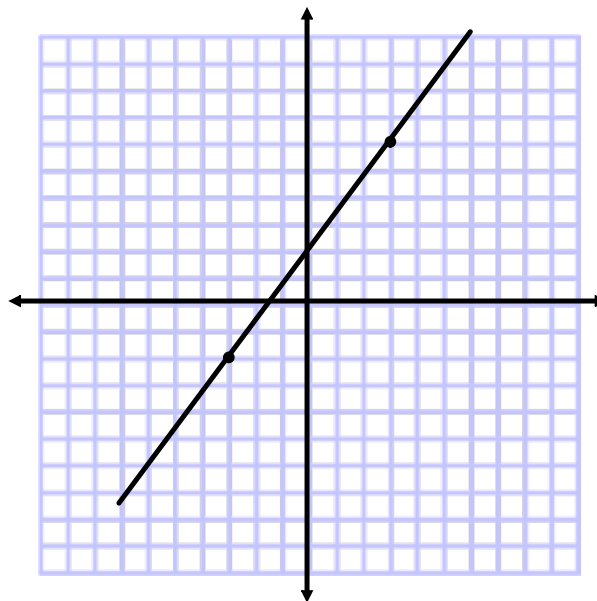
Determine the equation of the line for the following graph:

A(3,6) and B(-3,-2)

Slope (m):

Y intercept (b)

Equation: $y = mx + b$



Determine the equation of the line for the following graph:

A(3,6) and B(-3,-2)

1. write the equation of a line
2. sub in the slope (m) (you may have to calculate it first)
3. sub in the point (x,y) and solve for "b"
4. write the equation of the line with both the "m" and "b" values

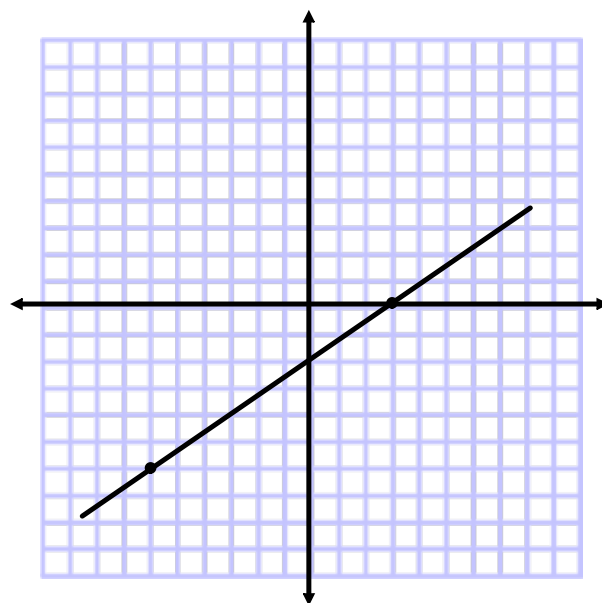
Determine the equation of the line for the following graph:

A(3,0) and B(-6,-6)

Slope (m):

Y intercept (b)

Equation: $y = mx + b$



Determine the equation of the line for the following graph:

A(3,0) and B(-6,-6)

1. write the equation of a line
2. sub in the slope (m) (you may have to calculate it first)
3. sub in the point (x,y) and solve for "b"
4. write the equation of the line with both the "m" and "b" values

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Consolidation Questions:

Gr 9 Academic - pg 290-2 #2,4,5,8,9(a,c,e)