

Name

Date



LINEAR EQUATION FROM TWO POINTS SHEET 1

- Take the two points (x_1, y_1) and (x_2, y_2) .
- Use the equation $m = (y_2 - y_1)/(x_2 - x_1)$ to determine the slope.
- Then use $y = mx + c$ and one of the points for the x and y values to determine the value of c .
- This gives you the equation of the line $y = mx + c$.

1) Points (5, 2) and (7, 10)

2) Points (15, 2) and (7, 10)

3) Points (-2, 10) and (8, 5)

4) Points (-4, 12) and (-6, 8)

5) Points (11, 20) and (9, 8)

6) Points (-3, -7) and (0, 2)

7) Points (-5, -8) and (1, 4)

8) Points (6, -5) and (12, 4)



LINEAR EQUATION FROM TWO POINTS SHEET 1 ANSWERS

- 1) Points (5, 2) and (7, 10)

$$m = (10 - 2)/(7 - 5) = 8/2 = 4$$

$$y = mx + c \text{ so this means } y = 4x + c$$

Use the point (5, 2)

$$\text{Substitute values } 2 = 4(5) + c$$

$$c = 2 - 20 = -18$$

$$\text{So } y = 4x - 18$$

- 2) Points (15, 2) and (7, 10)

$$m = (10 - 2)/(7 - 15) = 8/(-8) = -1$$

$$y = mx + c \text{ so this means } y = -x + c$$

Use the point (15, 2)

$$\text{Substitute values } 2 = -(15) + c$$

$$c = 2 + 15 = 17$$

$$\text{So } y = -x + 17 = 17 - x$$

- 3) Points (-2, 10) and (8, 5)

$$m = (5 - 10)/(8 - (-2)) = -5/10 = -\frac{1}{2}$$

$$y = mx + c \text{ so this means } y = -\frac{1}{2}x + c$$

Use the point (-2, 10)

$$\text{Substitute values } 10 = -\frac{1}{2}(-2) + c$$

$$10 = 1 + c \text{ so } c = 9$$

$$\text{So } y = -\frac{1}{2}x + 9 = 9 - \frac{1}{2}x$$

- 4) Points (-4, 12) and (-6, 8)

$$m = (8 - 12)/(-6 - (-4)) = -4/-2 = 2$$

$$y = mx + c \text{ so this means } y = 2x + c$$

Use the point (-4, 12)

$$\text{Substitute values } 12 = 2(-4) + c$$

$$c = 12 + 8 = 20$$

$$\text{So } y = 2x + 20$$

- 5) Points (11, 20) and (9, 8)

$$m = (8 - 20)/(9 - 11) = -12/-2 = 6$$

$$y = mx + c \text{ so this means } y = 6x + c$$

Use the point (11, 20)

$$\text{Substitute values } 20 = 6(11) + c$$

$$c = 20 - 66 = -46$$

$$\text{So } y = 6x - 46$$

- 6) Points (-3, -7) and (0, 2)

$$m = (2 - (-7))/(0 - (-3)) = 9/3 = 3$$

$$y = mx + c \text{ so this means } y = 3x + c$$

Use the point (0, 2)

$$\text{Substitute values } 2 = 3(0) + c$$

$$c = 2$$

$$\text{So } y = 3x + 2$$

- 7) Points (-5, -8) and (1, 4)

$$m = (4 - (-8))/(1 - (-5)) = 12/6 = 2$$

$$y = mx + c \text{ so this means } y = 2x + c$$

Use the point (1, 4)

$$\text{Substitute values } 4 = 2(1) + c$$

$$c = 4 - 2 = 2$$

$$\text{So } y = 2x + 2$$

- 8) Points (6, -5) and (12, 4)

$$m = (4 - (-5))/(12 - 6) = 9/6 = \frac{3}{2}$$

$$y = mx + c \text{ so this means } y = \frac{3}{2}x + c$$

Use the point (12, 4)

$$\text{Substitute values } 4 = \frac{3}{2}(12) + c$$

$$4 = 18 + c \text{ so } c = 4 - 18 = -14$$

$$\text{So } y = \frac{3}{2}x - 14$$