

Name

Date



LINEAR EQUATION FROM TWO POINTS SHEET 3

- Find the equation on the line passing through the two points.
- Give your answer in the form $y = mx + c$
- Rewrite your answer in standard form $Ax + By + C = 0$

1) Points $(-2, 15)$ and $(4, -9)$

2) Points $(-2, -20)$ and $(5, 1)$

3) Points $(3, -1)$ and $(11, 3)$

4) Points $(-2, 5)$ and $(10, -13)$

5) Points $(-6, 1)$ and $(9, 11)$

6) Points $(-3, -6)$ and $(2, 3)$



LINEAR EQUATION FROM TWO POINTS SHEET 3 ANSWERS

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1) Points (-2, 15) and (4, -9)

$$m = (-9 - 15)/(4 - (-2)) = -24/6 = -4$$

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

Use the point (-2, 15)

$$\text{Substitute values } 15 = -4(-2) + c$$

$$c + 8 = 15 \text{ so } c = 7$$

$$\text{So } y = -4x + 7 \text{ (or } y = 7 - 4x)$$

Standard Form:

$$y = 7 - 4x$$

$$4x + y = 7$$

$$\text{So } 4x + y - 7 = 0$$

2) Points (-2, -20) and (5, 1)

$$m = (1 - (-20))/(5 - (-2)) = 21/7 = 3$$

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

Use the point (-2, -20)

$$\text{Substitute values } -20 = 3(-2) + c$$

$$c + (-6) = -20 \text{ so } c = -14$$

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

Standard Form:

$$y = 3x - 14$$

$$3x - 14 - y = 0$$

$$\text{So } 3x - y - 14 = 0$$

3) Points (3, -1) and (11, 3)

$$m = (3 - (-1)) / (11 - 3) = 4/8 = \frac{1}{2}$$

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

Use the point (3, -1)

$$\text{Substitute values: } -1 = \frac{1}{2}(3) + c$$

$$\text{So } c + 3/2 = -1$$

$$c = -1 - 3/2 = -5/2 \text{ or } -2\frac{1}{2}$$

$$\text{So } y = \frac{1}{2}x - 5/2$$

Standard Form

$$y = \frac{1}{2}x - 5/2$$

$$\frac{1}{2}x - 5/2 - y = 0$$

$$\frac{1}{2}x - y - 5/2 = 0$$

$$x - 2y - 5 = 0$$

5) Points (-6, 1) and (9, 11)

$$m = (11 - 1)/(9 - (-6)) = 10/15 = 2/3$$

$$y = mx + c \text{ so } y = 2/3x + c$$

Use the point (-6, 1)

$$\text{Substitute values: } 1 = 2/3(-6) + c$$

$$c - 12/3 = 1$$

$$c - 4 = 1 \text{ so } c = 5$$

$$\text{So } y = 2/3x + 5$$

Standard Form

$$y = 2/3x + 5$$

$$2/3x + 5 - y = 0$$

$$2/3x - y + 5 = 0$$

$$2x - 3y + 15 = 0$$

4) Points (-2, 5) and (10, -13)

$$m = (-13 - 5)/(10 - (-2)) = -18/12 = -3/2$$

$$y = mx + c \text{ so } y = -3/2x + c$$

Use the point (-2, 5)

$$\text{Substitute values: } 5 = -3/2(-2) + c$$

$$c + 3 = 5 \text{ so } c = 2$$

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

Standard Form

$$y = 2 - 3/2x$$

$$y + 3/2x - 2 = 0$$

$$2y + 3x - 4 = 0$$

$$3x + 2y - 4 = 0$$

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

$$m = (3 - (-6)) / (2 - (-3)) = 9/5$$

$$y = mx + c \text{ so } y = 9/5x + c$$

Use the point (-3, -6)

$$\text{Substitute values: } -6 = 9/5(-3) + c$$

$$c - 27/5 = -6$$

$$c = -6 + 27/5 = -30/5 + 27/5 = -3/5$$

$$\text{So } y = 9/5x - 3/5$$

Standard Form

$$y = 9/5x - 3/5$$

$$9/5x - 3/5 - y = 0$$

$$9/5x - y - 3/5 = 0$$

$$9x - 5y - 3 = 0$$