December 8, 2021

HW: Worksheet

Warm up:

1) Write an equation for the line with slope 4 through the point (-3, 5).

$y = 4x + b$

$5 = 4(-3) + b$

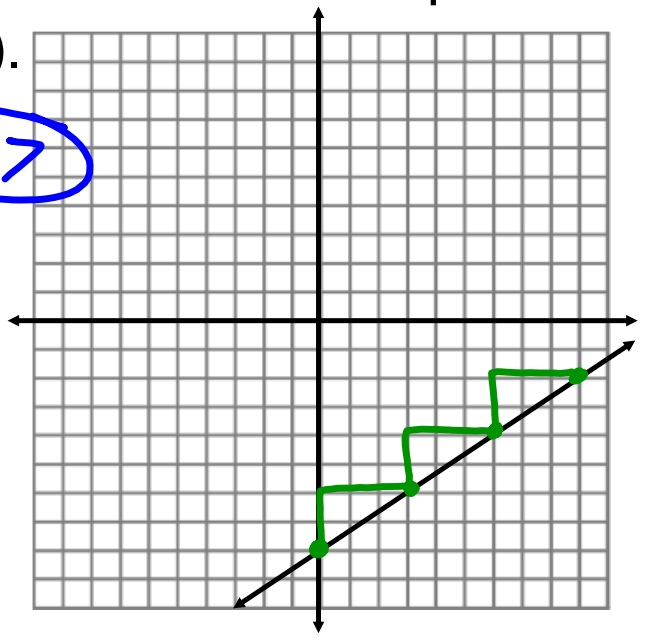
$5 = -12 + b$

$+12 \quad +12$

$17 = b$

$y = 4x + 17$

2) Write an equation for the line to the right.



$y = \frac{2}{3}x - 8$

Write the function for the line with slope 4/5 that goes through (-10, 2).

$y = \frac{4}{5}x + b$

$2 = \frac{4}{5}(-10) + b$

$2 = -8 + b$

$+8 \quad +8$

$10 = b$

$\frac{4}{5}\left(-\frac{10}{1}\right)$

$y = \frac{4}{5}x + 10$

Write a function for the line that goes through (2, 5) and (6, -3) $\frac{-3-5}{6-2} = \frac{-8}{4} = -2$

$\frac{\Delta y}{\Delta x} = \frac{5-(-3)}{2-6} = \frac{8}{-4} = -2$ ← slope

$y = -2x + b$

$5 = -2(2) + b$

$5 = -4 + b$

$+4 \quad +4$

$9 = b$

$y = -2x + 9$

Write a function for the line that goes through (2, 6) and (-8, 1)

$\frac{\Delta y}{\Delta x} = \frac{6-1}{2-(-8)} = \frac{5}{10} = \frac{1}{2}$

$y = \frac{1}{2}x + b$

$6 = \frac{1}{2}(2) + b$

$6 = 1 + b$

$-1 \quad -1$

$5 = b$

$y = \frac{1}{2}x + 5$

Write the function that has the following function table.

x	y
1	-2
2	1
3	4
4	7

$\frac{\Delta y}{\Delta x} = \frac{1-4}{2-3} = \frac{-3}{-1} = 3$

$y = 3x + b$

$1 = 3(2) + b$

$1 = 6 + b$

$-6 \quad -6$

$-5 = b$

$y = 3x - 5$

Write a function for the line with the given information.

1) Line with slope 2 through (5, 9)

2) Line with slope -1 through (-7, 5)

3) Line through (5, 12) and (8, 3)

4) Line through (-4, 3) and (-2, -8)

5) Line through (4, 10) and (8, 7)

6+7) Lines with the following function tables:

x	y
3	7
4	11
5	15
6	19

x	y
2	-5
4	-8
6	-11
8	-14

1) Line with slope 2 through (5, 9)

$y = 2x + b$

$9 = 2(5) + b$

$9 = 10 + b$

$-10 \quad -10$

$-1 = b$

$y = 2x - 1$

2) Line with slope -1 through (-7, 5)

$y = -x + b$

$5 = -1(-7) + b$

$5 = 7 + b$

$-7 \quad -7$

$-2 = b$

$y = -x - 2$

3) Line through (5, 12) and (8, 3)

$$\frac{\Delta y}{\Delta x} = \frac{12-3}{5-8} = \frac{9}{-3} = -3$$

$y = -3x + b$

$3 = -3(8) + b$

$3 = -24 + b$

$+24 \quad +24$

$27 = b$

$y = -3x + 27$

4) Line through (-4, 3) and (-2, -8)

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

$y = -\frac{11}{2}x + b$

$-8 = -\frac{11}{2}(-2) + b$

$-8 = 11 + b$

$-11 \quad -11$

$-19 = b$

$y = -\frac{11}{2}x - 19$

5) Line through (4, 10) and (8, 7)

$$\frac{10-7}{4-8} = \frac{3}{-4} = -\frac{3}{4}$$

$$y = -\frac{3}{4}x + b$$

$$10 = -\frac{3}{4}(4) + b$$

$$10 = -3 + b$$

$$+3 \quad +3$$

$$13 = b$$

$$y = -\frac{3}{4}x + 13$$

6+7) Lines with the following function tables:

x	y
3	7
4	11
5	15
6	19

$\frac{11-7}{4-3} = \frac{4}{1} = 4$

$y = 4x + b$

$7 = 4(3) + b$

$7 = 12 + b$

$-5 = b$

$y = 4x - 5$

x	y
2	-5
4	-8
6	-11
8	-14

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