Linear Functions

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Objectives:

1. I will be able to find the equation of a line given certain information.
2. I will be able to find the equation of a line given the graph.
3. I will be able to graph a linear function given the equation or other information.

Writing Equations of Liner Functions

Slope = 3
through the point (0, –4)

$y = mx + b$

$y = 3x - 4$

$y = 3x + b$
$-4 = 3(0) + b$
$-4 = b$

Forms of Linear Equations

Slope Intercept Form: $y = mx + b$

Point Slope Form: $y - y_1 = m(x - x_1)$ POINT (x_1, y_1) SLOPE $= m$

Standard Form: $Ax + By = C$ A, B, C ARE INTEGERS $A > 0$ $\{\ldots -2, -1, 0, 1, 2, \ldots\}$

I will be able to graph and write equations of linear functions.

Writing Equations of Liner Functions

through the point (5, –1)
perpendicular to $y = 3x + 4$ → $m = 3$ ⇒ $m_\perp = -\frac{1}{3}$

$y - y_1 = m(x - x_1)$

$y + 1 = -\frac{1}{3}(x - 5)$

SLOPE INTERCEPT FORM

$y + 1 = -\frac{1}{3}x + \frac{5}{3}$

$y = -\frac{1}{3}x + \frac{5}{3} - 1$

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

STANDARD FORM $3y = -x + 2$

$x + 3y = 2$

I will be able to graph and write equations of linear functions.

Writing Equations of Liner Functions

through the points (3, 4) and (2, –5)

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-5 - 4}{2 - 3} = \frac{-9}{-1} = 9$

PT SLOPE FORM

$y - 4 = 9(x - 3)$ → SLOPE INT

$y = 9x - 27 + 4$

$y = 9x - 23$ → STANDARD FORM

$9x - y = 23$

I will be able to graph and write equations of linear functions.

Classwork:

1.4 WS - Lines

Homework:

I will be able to solve inequalities and write the answer in interval notation.