Name: KEY

Learning Target 3 – 2: Writing Equations of Lines – V1

Learning Target $(L-T)$	Procedural Context
$3-2$ **Writing Equations of Lines**	• Write an equation in a given form • Depending on information provided, know where to start • Horizontal and Vertical Lines • Parallel and Perpendicular Slopes and how they relate

Self-Reflection

For this Learning Target I am feeling:

Discuss your work habits leading up to this Check-In:

Your Level of Understanding of this Learning Target is:

My Feedback:

Emerging Level Questions

For each pair of equations, determine whether they are parallel, perpendicular, or neither (Show Work)

1. $2x + 4y = 8$ and $x + 2y = 6$

$4y = -2x + 8$ $\quad 2y = -x + 6$

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

Parallel

2. $3x - 4y = 7$ and $6x + 5y = 12$

$-4y = -3x + 7$ $\quad 5y = -6x + 12$

$y = \frac{3}{4}x - \frac{7}{4}$ $\quad y = -\frac{6}{5}x + \frac{12}{5}$

Neither

3. Write the equation of a line in **Standard Form** that has a slope of -3 and passes through $(-3, 4)$.

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

$y - 4 = -3x - 9$

$3x + y = -5$

4. Write the equation of the line in any form, that passes through points $(1, 7)$ and $(-3, 7)$

$\frac{7-7}{-3-1} = \frac{0}{-4} = 0$

horizontal

$y = 7$

Proficient Level Questions

Write the equation of the line, in Slope-Intercept form, of the line passing the given set of points.

5. $(-3, 1)$ and $(0, -6)$

$\frac{-6-1}{0-(-3)} = \frac{-7}{3}$ $\quad m = -\frac{7}{3}$

$y\text{-int} = -6$

$y = -\frac{7}{3}x - 6$

6. $(4, -3)$ and $(5, 7)$

$\frac{7-(-3)}{5-4} = 10$

$y - 7 = 10(x - 5)$

$y - 7 = 10x - 50$

$y = 10x - 43$

7. Find the equation, in all 4 forms, of the line that **passes through** $(-2, 4)$ and is **parallel** to $2x - 3y = 5$.

$-3y = -2x + 5$

$y = \frac{2}{3}x - \frac{5}{3}$

$y - 4 = \frac{2}{3}(x + 2)$

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

$y = \frac{2}{3}x + \frac{4}{3} + \frac{12}{3} \rightarrow y = \frac{2}{3}x + \frac{16}{3}$

$3y = 2x + 16$

$2x - 3y = -16$

$2x - 3y + 16 = 0$

8. Find the equation, in all 4 forms, of the line that **passes through** ~~$(2, 4)$~~ $(6, -3)$ and is ~~parallel to $2x - 3y = 5$~~.

pap · $3x - 4y = 5$

$-4y = -3x + 5$

$y = \frac{3}{4}x - \frac{5}{4}$

$m = -\frac{4}{3}$

~~$y - 4 = -\frac{3}{2}(x + 4)$~~

$y + 3 = -\frac{4}{3}(x - 6)$

$y + 3 = -\frac{4}{3}x + 8$

$y = -\frac{4}{3}x + 5$

$3y = -4x + 15$

$4x + 3y = 15$

$4x + 3y - 15 = 0$

Extending Level Questions

9. Find the equation in all 4 forms of the line **perpendicular** to the line $3x - 7y = 12$ and has the same **y-intercept** as the line $2x + 5y = 15$.

y-int: (0,3)

$m = -\frac{7}{3}$

$-7y = -3x + 12$

$y = \frac{3}{7}x - \frac{12}{7}$

$y - 3 = -\frac{7}{3}(x - 0)$

$y - 3 = -\frac{7}{3}x$

$y = -\frac{7}{3}x + 3$

$3y = -7x + 9$

$7x + 3y = 9$

$7x + 3y - 9 = 0$

10. Find the equation in all 4 forms of the line **parallel** to the line $4x - 3y = 18$ and has the same **x-intercept** as the line $2x - 3y = 14$.

(7,0)

$m = \frac{4}{3}$

x-int: (7,0)

$-3y = -4x + 18$

$y = \frac{4}{3}x - 6$

$y - 0 = \frac{4}{3}(x - 7)$

$y = \frac{4}{3}x - \frac{28}{3}$

$3y = 4x - 28$

$4x - 3y = 28$

$4x - 3y - 28 = 0$