

Math 10 Xmas Flashback #2

1. Write the equation for the line that goes through (7, -2) and has a slope of $\frac{3}{4}$.
Write the equation in all 3 versions (point-slope, general and slope y-intercept form)

$$(7, -2)$$

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

$$\frac{3}{4}(x - 7) = y - -2$$

$$\frac{3}{4}(x - 7) = y + 2$$

Point slope

$$4 \times \frac{3}{4}x - \frac{4 \times 21}{4} = 4y + 4 \times 2$$

$$3x - 21 = 4y$$

$$\leftarrow 3x - 21 = 4y + 8$$

$$\frac{3}{4}x - \frac{29}{4} = y \quad \text{slope int}$$

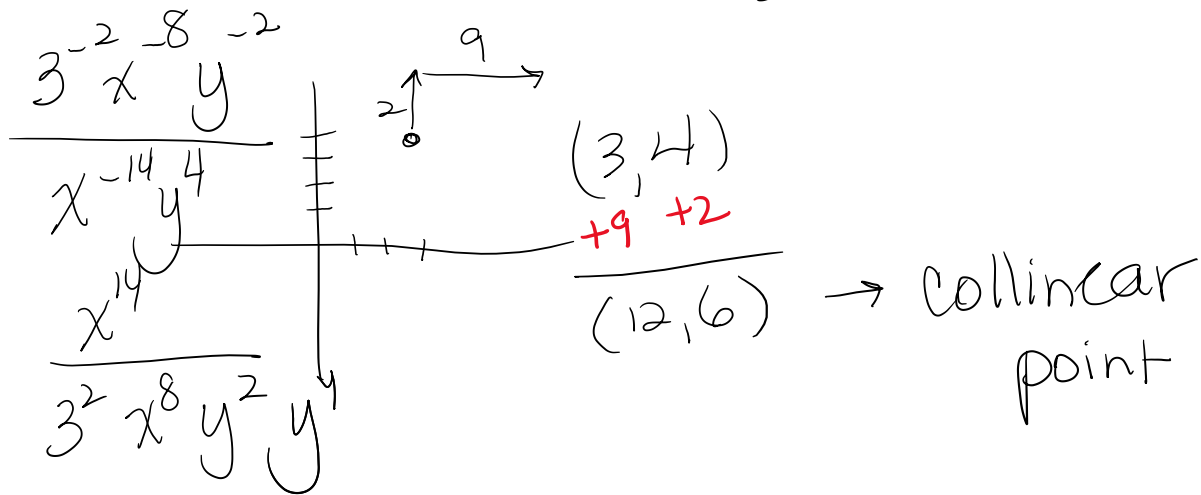
$$3x - 4y - 29 = 0 \quad \text{General}$$

2. What is the slope of the line between the points (3, 4) and (-6, 2)? Is this increasing or decreasing? What is the slope that is parallel to it? Perpendicular? Give one other "nice" that is collinear to the given two points.

$$m = \frac{\text{rise}}{\text{run}} = \frac{4 - 2}{3 - -6} = \frac{2}{9}$$

° parallel $m = \frac{2}{9}$

3. Simplify: $\left(\frac{3x-4}{7y-2}\right)^2$ perpendicular $m = -\frac{9}{2}$



Math 10 Xmas Flashback #2

$$\frac{x^6}{9y^6}$$

4. Graph the following lines on the grid:

a) $y = -\frac{2}{3}x + 7$

b) $x = 4$ vertical line

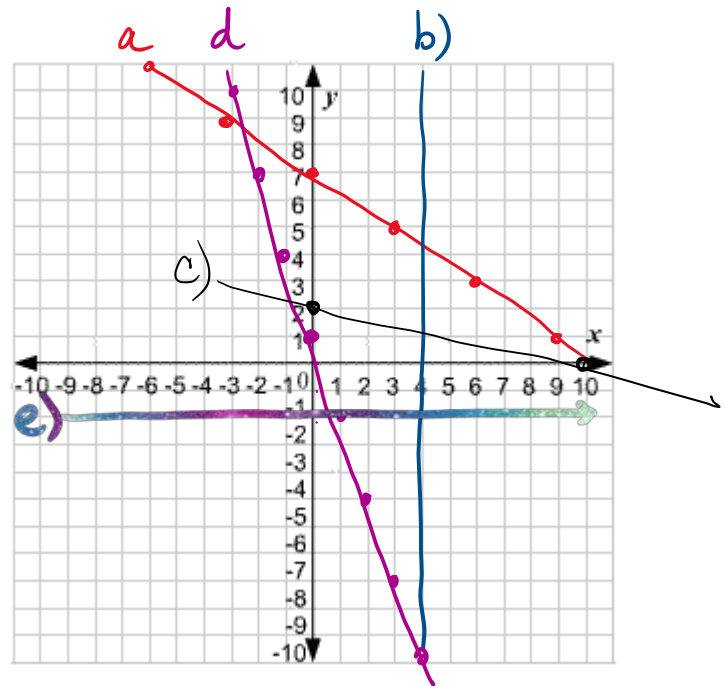
c) $x + 5y - 10 = 0$

d) $-3(x + 1) = y - 4$ $m = -\frac{3}{1}$ $(-1, 4)$

e) $y = -2$

horizontal!

x int $x=10$
 y int $y=2$
 $x=0$

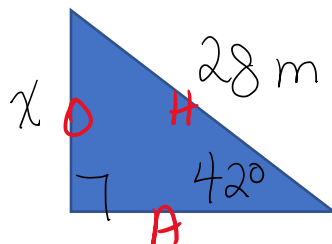


5. Create a system that has a solution of (3, 1). Check your solution with desmos.

$$\begin{aligned} x + y &= 4 \\ 2x - y &= 5 \end{aligned}$$

$$\begin{aligned} 3 + 1 &= 4 \\ 2(3) - 1 &= 5 \end{aligned}$$

6. Determine the missing side:



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$$\sin 42 = \frac{x}{28}$$

$$\begin{aligned} 28 \sin 42 &= x \\ 18.7 &\doteq x \end{aligned}$$

Math 10 Xmas Flashback #2

7. Factor completely: $2x^2 + 10x - 28$

$$2(x^2 + 5x - 14)$$

$$2(x+7)(x-2)$$

8. If $h(x) = -4x - 3$, determine $h(11)$ and $h(x) = -9$

$$\begin{aligned} h(11) &= -4(11) - 3 \\ &= -44 - 3 \\ &= -47 \end{aligned}$$

$$\begin{aligned} h(x) &= -9 \\ -4x - 3 &= -9 \\ \quad \quad \quad \color{red}{+3} & \quad \quad \color{red}{+3} \\ -4x &= -6 \\ \underline{-4} & \quad \quad \underline{-4} \\ x &= \frac{3}{2} \end{aligned}$$