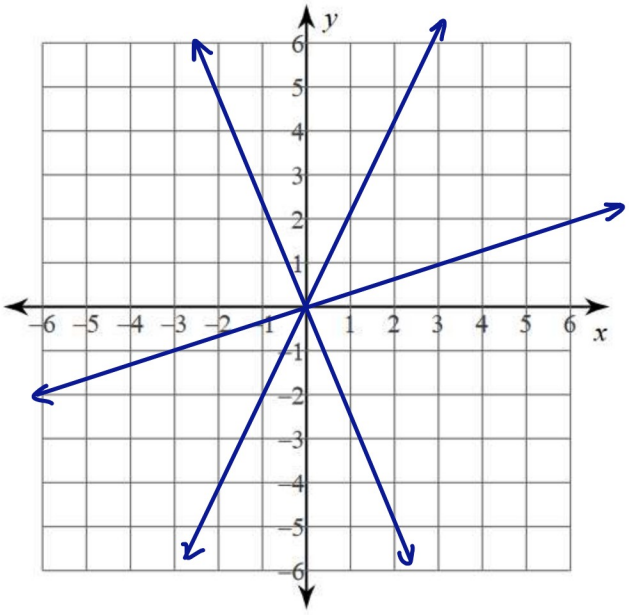
Lines: Lesson 10

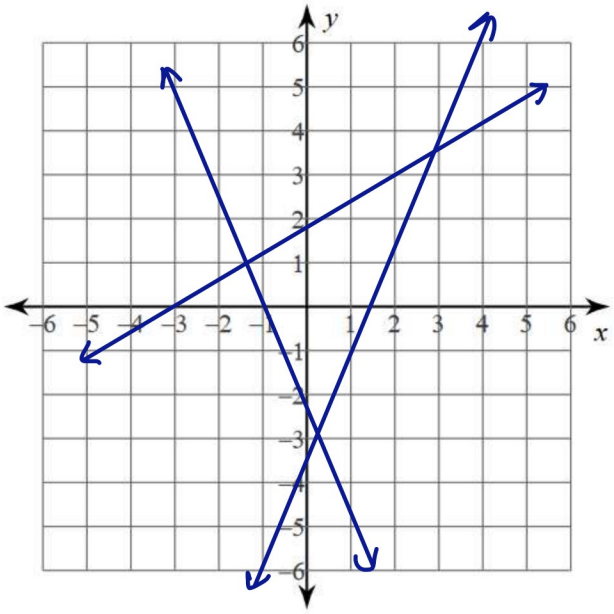
Direct Variation: Notes

Answer Key!

Name: _____



Direct Variation



NOT Direct Variation

y-intercept = (0,0) or origin

$y =$ k · x

The amount you get paid varies directly with the number of hours you work:

A = $14 · h

Your distance traveled varies directly to the number of hours driven:

d = 60 · t

Our weight on the moon varies directly to our weight on earth:

$W_{moon} = 0.165 \cdot W_{earth}$

$y=kx \longrightarrow k = \frac{y}{x}$

Are these data sets examples of direct variation?

x	y
2	1
3	6
4	8

$\frac{y}{x}$ $\frac{1}{2}$ $\frac{6}{3}=2$ ✗ NO

x	y
-6	9
1	-1.5
8	-12

$\frac{y}{x}$ $\frac{9}{-6}=-\frac{3}{2}$ $\frac{-1.5}{1}=\frac{-15}{10}=\frac{-3}{2}$ $\frac{-12}{8}=\frac{-3}{2}$ yes!

If y varies directly with x, and when $x=6$, $y=2$, what is y when $x=24$?

1. Write the direct variation equation: $y=kx$
2. Put in the numbers that are related: $2=k\cdot 6$
3. Solve for k: $k=\frac{2}{6}=\frac{1}{3}$
4. Put our k into the original formula: $y=\frac{1}{3}x$
5. Put the new number in, and then solve for the other: $y=\frac{1}{3}\cdot 24=8$

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

The number of candies produced on a machine varies directly with the number of hours the machine is running. When the machine runs for 5 hours, there are 750 candies. How many candies are there when the machine runs for 8 hours?

$C=k\cdot h$

$750=k\cdot 5$

$k=150$

$C=150\cdot h$

$C=150\cdot 8=1200$ candies