28.) $y = kx$

sea level 7,000

Distance: 200 210

$\frac{210}{200} = k \frac{200}{200}$

a.) $1.05 = k$ direct variation

b.) $1.05(180) = y$

$189 \text{ ft} = y$

44.) 11:50 − 3:00

190 minutes

$\frac{5200}{190} = 27.368 \approx 27.37$ about $\boxed{\frac{27 \text{ seats}}{1 \text{ minute}}}$

a) $y = 27x$

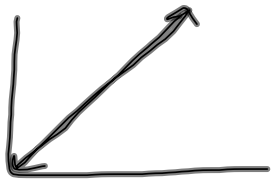
b) $\frac{27 \text{ seats}}{1 \text{ min}} = \frac{1890 \text{ seats}}{70 \text{ min}}$

c) $\frac{40,000}{27} = 1481.48$ $1481\frac{1}{2}$ min. $\frac{1481.5}{60} = 24.68 \approx$ (25 hours)

30.) $y = kx$

$\frac{3.2}{1.6} = k \quad \frac{1.6}{1.6}$

If. $2 = k$ solve for k



then. $y = kx$

$y = 2(19)$

$y = 38$

42) $\frac{3 \text{ in.}}{93 \text{ miles}} = \frac{1.8 \text{ in}}{\quad}$

Standard form of an Equation

$Ax + By = C$

Slope Intercept form of a line

$y = mx + b$

X intercept (,0) $y=0$ solve for x

y intercept (0,) $x=0$ solve for y

$Ax + By = C$

Find the x and y interepts

Plug 0 in for y and solve for x. (x, y)

Plug 0 in for x and solve for y. (x, y)

$Ax + By = C$

$y = kx$

k slope direct variation

Convert $Ax + By = C$ to $y = mx + b$ (slope-intercept form; m: slope, b: y-intercept)

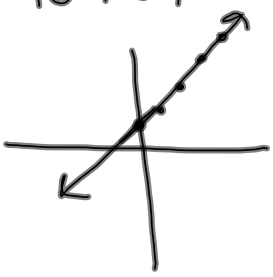
1. move the $Ax \longrightarrow$ to the other side by adding or subtracting.

$$Ax + By = C$$
$$-Ax \quad -Ax$$
$$By = -Ax + C$$

2. Divide everything by B to solve for y.

$$\frac{By}{B} = \frac{-Ax}{B} + \frac{C}{B}$$
$$y = -\frac{Ax}{B} + \frac{C}{B}$$

3. Graph the y intercept $\boxed{C}$ and apply the slope (direct variation) to the points to make a line.



$y = mx + b$

Method #2

$3x + 5y = 15$ Standard Form

Finding the x and y intercepts

$3(0) + 5y = 15$

$\frac{5}{5}y = \frac{15}{5}$

$y = 3$

y intercept $(0, 3)$

$3x + 5y = 15$

$3x + 5(0) = 15$

$3x = 15$

$x = 5$

x intercept $(5, 0)$

Use the two intercepts to plot points then draw the line.

Method #1

$3x + 5y = 15$

move $-3x$ | move $-3x$

$5y = -3x + 15$

Step 1:

Changing from Standard form to Slope Intercept Form

Step 2: solve by dividing

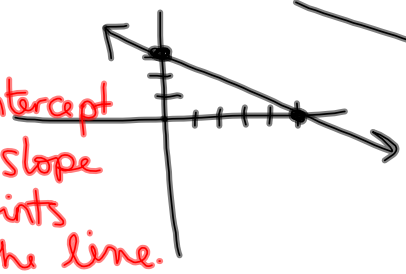
$\frac{5y}{5} = \frac{-3}{5}x + \frac{15}{5}$

3: Slope-Intercept form

$y = -\frac{3}{5}x + 3$ — y intercept

slope (direct variation)

4. Graph y intercept
Apply the slope
Add points
Draw the line.



One Solution

Only 1 # works

□ = x

□□ 4x = □ 2x + 6

4x = 2x + 6

−2x −2x

2x = 6

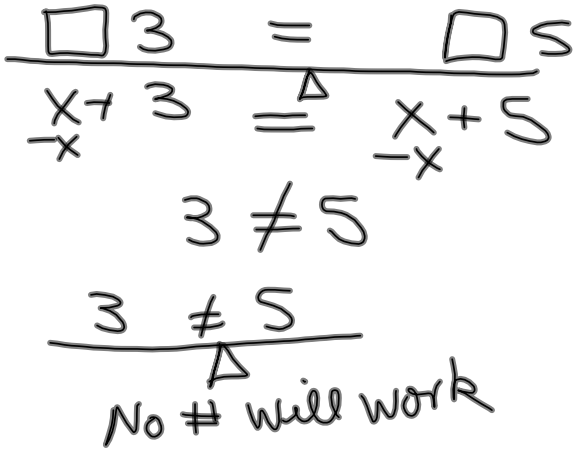
x = 3

[x] = 3

X=3 is the only possible answer

No Solution

□ = x



Infinite Solutions

All numbers can work!

$x + 4 = x + 4$

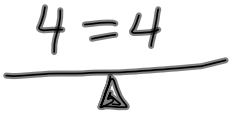
$-x \quad -x$

$4 = 4$

True

All variable are eliminated

Any # will work = All Real Numbers



$4 = 4$

Infinit Solutions
(Scale is balanced)