

Warm up

Solve using algebra then by graphing.

$$y = \frac{1}{2}x + 6$$

$$y = \frac{1}{3}x + 9$$

$$6 \cdot \frac{1}{2}x + 6 = 6 \cdot \frac{1}{3}x + 9$$

$$3x + 36 = 2x + 54$$

$$x = 18$$

$$y = \frac{1}{2}(18) + 6$$

$$y = 9 + 6$$

$$y = 15$$

$$(18, 15)$$

• $y = \frac{1}{2}x + 6$

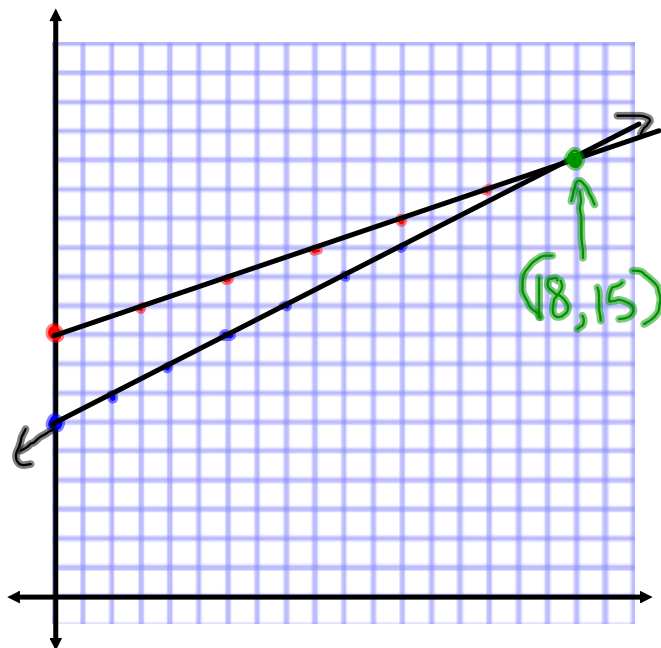
$$m = \frac{1}{2}$$

$$b = 6$$

• $y = \frac{1}{3}x + 9$

$$m = \frac{1}{3}$$

$$b = 9$$



Questions from homework

- ⑤ Let $x = \#$ of students
Let $y = \#$ of adults.

$$\begin{aligned}4x + 6y &= 2784 \\ x + y &= 568\end{aligned}$$

$$\begin{aligned}4x + 6y &= 2784 \\ (-) \quad 4x + 4y &= 2272 \\ \hline 2y &= 512 \\ y &= 256\end{aligned}$$

$x + y = 568$
 $x + 256 = 568$
 $x = 312$

\therefore 312 students + 256 adults attended.

- ④ Let $x = \text{local } (\$)$
Let $y = \text{long dis. } (\$)$

$$\begin{aligned}20y + 8x &= 34 \\ y &= 3x\end{aligned}$$

$$\begin{aligned}20(3x) + 8x &= 34 \\ 60x + 8x &= 34 \\ 68x &= 34 \\ x &= \$0.50\end{aligned}$$

$y = 3(0.50)$
 $y = \$1.50$

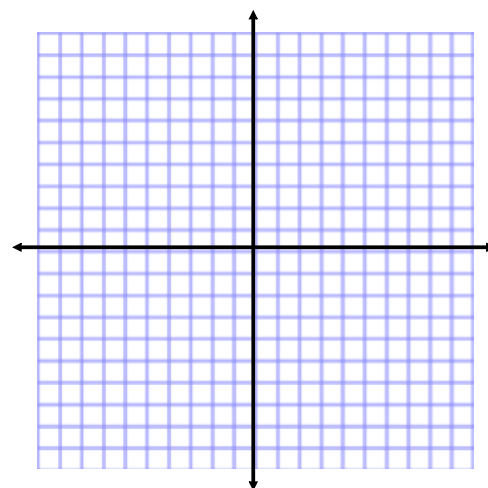
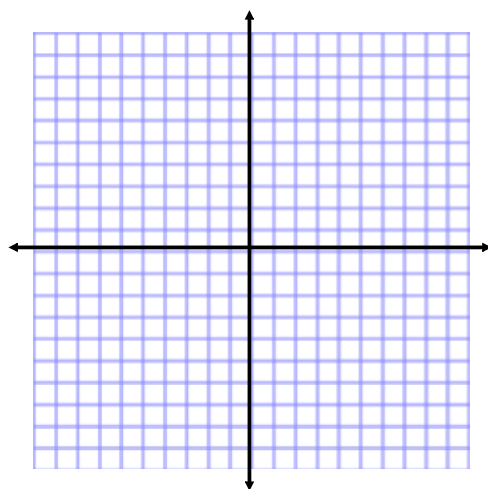
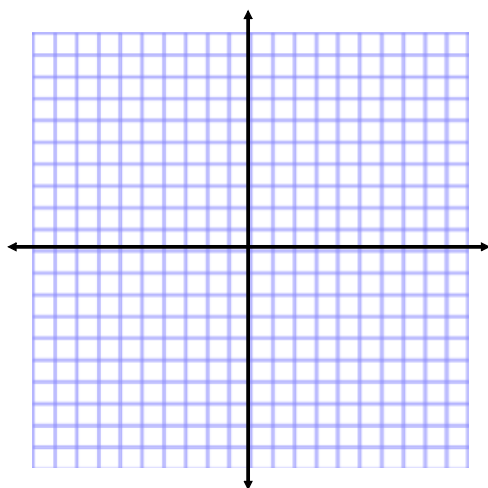
\therefore Local calls cost \$0.50/min
LD " " \$1.50/min

Plotting Linear Relations

Plot the function by:

- a) Table of values
- b) X and Y intercepts
- c) Slope and y intercept ($y = mx + b$)

$$y = -2x + 4$$



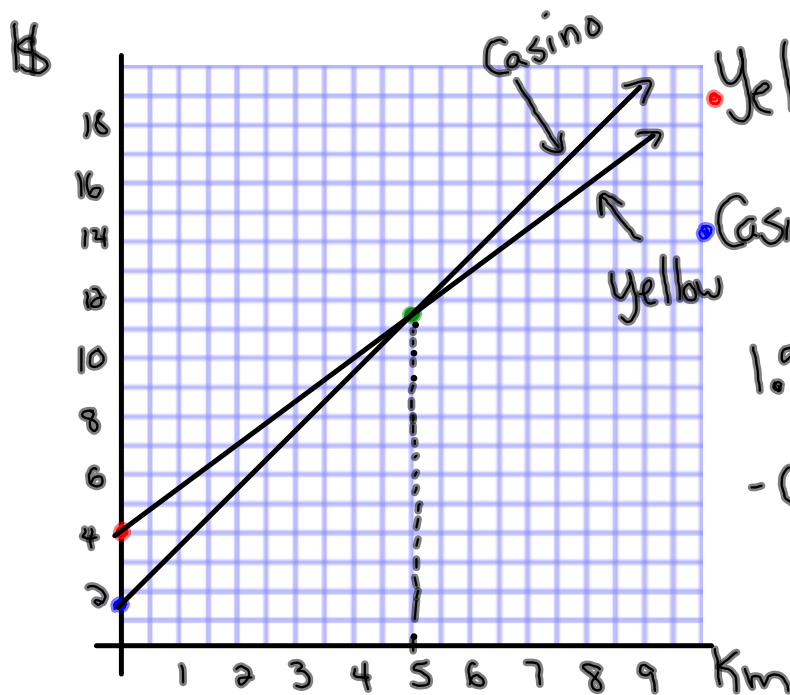
Plotting Linear Relations

Two cab companies charge different rates. After how long will the cost be the same no matter what cab you take?

← "y intercept or b value"

Yellow Cab: \$4.00 flat rate plus \$1.50/km

Casino Cab: \$1.50 flat rate plus \$2.00/km



Yellow: $y = 1.5x + 4$

Casino: $y = 2x + 1.5$

$$1.5x + 4 = 2x + 1.5$$

$$-0.5x = -2.5$$

$$x = 5 \text{ km}$$

Any trip over 5km
I would choose yellow
cab as it costs less.

$$y = 2x + 1.5$$

$$y = 2(5) + 1.5$$

$$y = 10 + 1.5$$

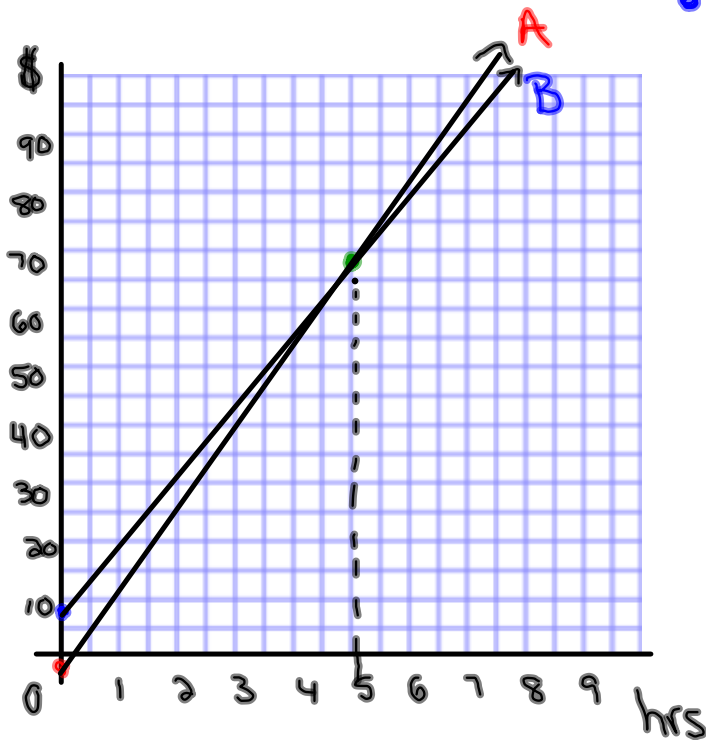
$$y = \$11.50$$

$$(5, 11.50)$$

Consider the following payment plans. At how many hours is the pay the same?

Plan A: \$14/hour

Plan B: \$10 flat rate plus \$12/hour



- A: $y = 14x$
- B: $y = 12x + 10$

$$14x = 12x + 10$$

$$2x = 10$$

$$x = 5 \text{ hrs}$$

$$y = 14(5)$$
$$y = \$70$$

$$(5, 70)$$

∴ After 5 hours Plan A is better as it pays more.

Homework