

DO NOW: Copy the problems below into your notes and answer

29MAY14

Write 3.56×10^{11} as an ordinary number.

Write 7.085×10^{-14} as an ordinary number

The speed of light in a vacuum is 299,792,458 m/s
What is this written in Scientific notation?

The mass of the Moon is 73,000,000,000,000,000,000 kg
What is this written in Scientific notation?



Write 3.56×10^{11} as an ordinary number.

356,000,000,000

Write 7.085×10^{-14} as an ordinary number

0.000000000000007085

The speed of light in a vacuum is 299 792 458 m/s
What is this written in Scientific notation?

2.99792458×10^8

The mass of the Moon is 73,000,000,000,000,000,000 kg
What is this written in Scientific notation?

7.3×10^{22}



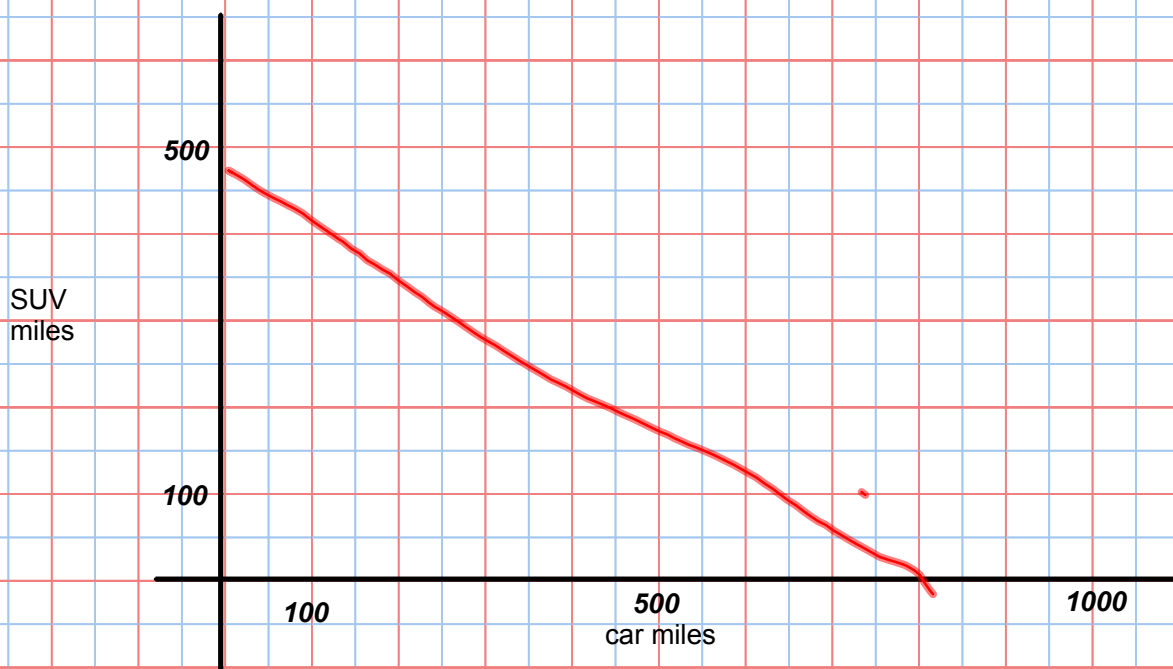
Problem 5.2 Solving Linear Inequalities by Graphing

A. Suppose Vince's family wants their total CO₂ emissions to be *exactly* 600 pounds per month.

1. Give six examples of (*car miles*, *SUV miles*) that give exactly 600 pounds of CO₂ emissions per month.
2. Write an equation to model this condition.
3. Graph your equation.



$$75x + 1.25y = 600$$



B. Suppose the family wants to limit their total CO₂ emissions to *at most* 600 pounds per month.

1. Write an inequality that describes the possibilities for the miles they can drive their car if they do not drive their SUV at all.
2. Write an inequality that describes the possibilities for the miles they can drive their SUV if they do not drive their car at all.
3. Write an inequality that describes the possibilities for how many miles they can drive their car *and* their SUV.
4. Draw a graph displaying (*car miles*, *SUV miles*) pairs that satisfy the inequality you wrote in Question B, part (3).
5. Describe the region of the graph that includes all points that represent a total of no more than 600 pounds of CO₂ emissions.

$$0.75x \leq 600$$
$$1.25y \leq 600$$
$$.75x + 1.25y \leq 600$$

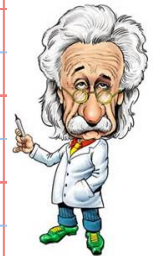
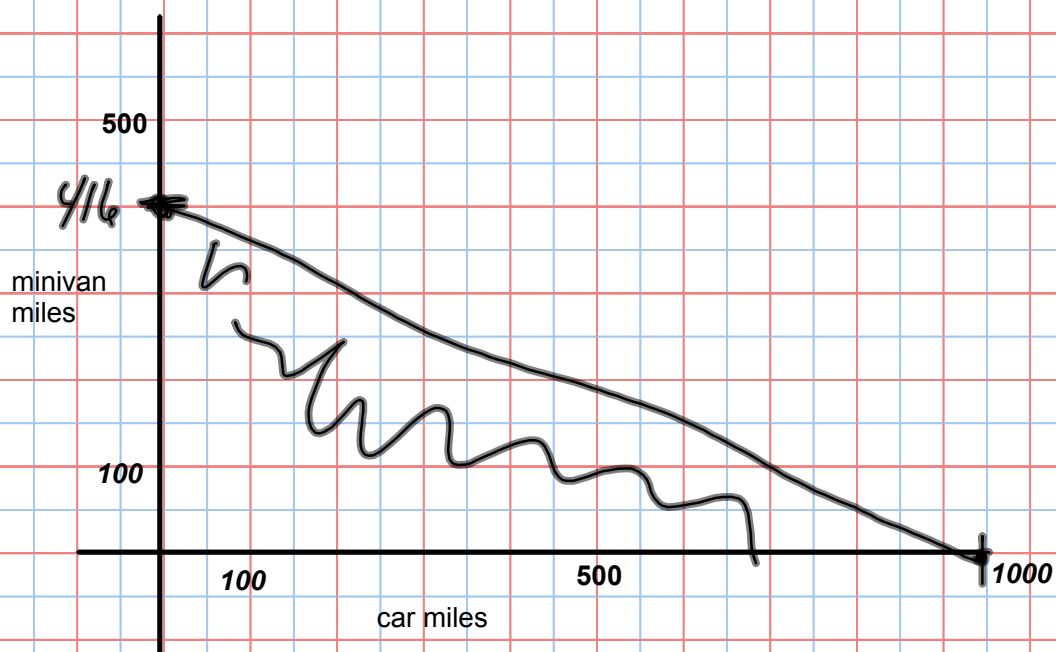


C. Soo's family has a minivan and a hybrid car. The minivan emits 1.2 pounds of CO₂ per mile. The car emits 0.5 pounds of CO₂ per mile. The family wants to limit their total emissions to at most 500 pounds per month.

1. The family plans to drive both vehicles. Write an inequality to describe the possibilities for how many miles they can drive each vehicle.
2. Draw a graph displaying the (*car miles*, *minivan miles*) pairs that satisfy the inequality you wrote in Question C, part (1).
3. Describe the region of the graph that includes all points that satisfy the condition.

$$0.5x + 1.2y \leq 500$$

ACE Homework starts on page 78.



Graphing linear inequalities using slope-intercept form

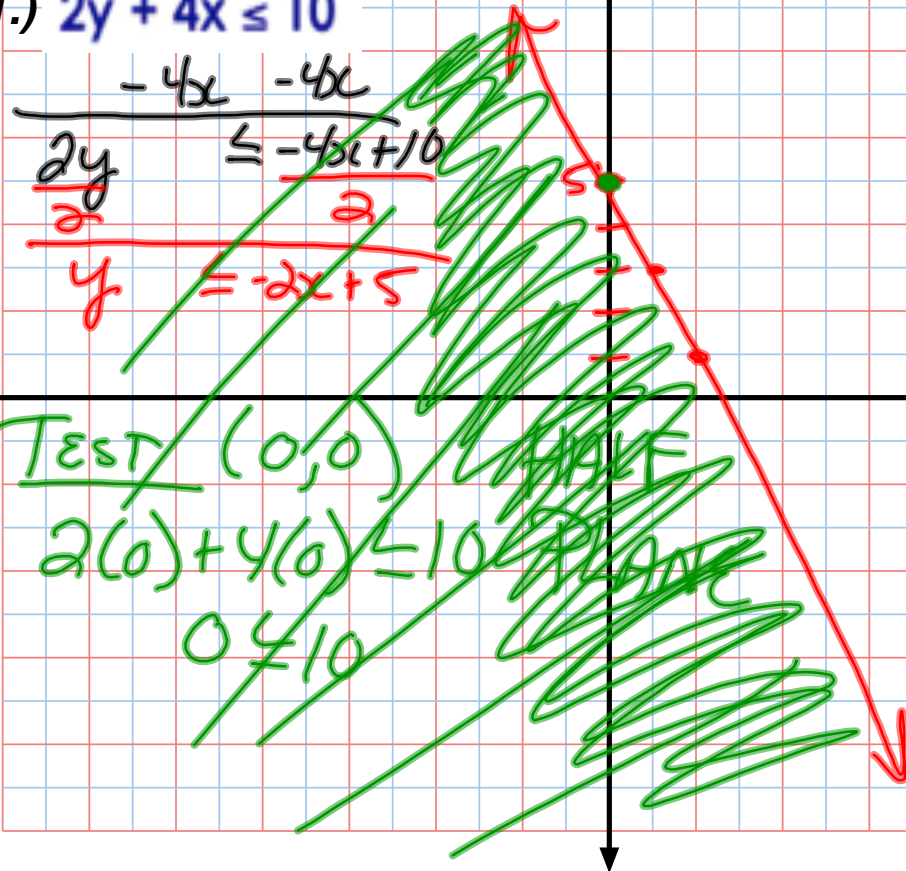
1.) $2y + 4x \leq 10$

$$\begin{array}{rcl} & -4x & -4x \\ \hline 2y & \leq & -4x + 10 \\ \hline y & = & -2x + 5 \end{array}$$

Test (0,0)

$$2(0) + 4(0) \leq 10$$

$$0 \leq 10$$



Graphing linear inequalities using intercepts:

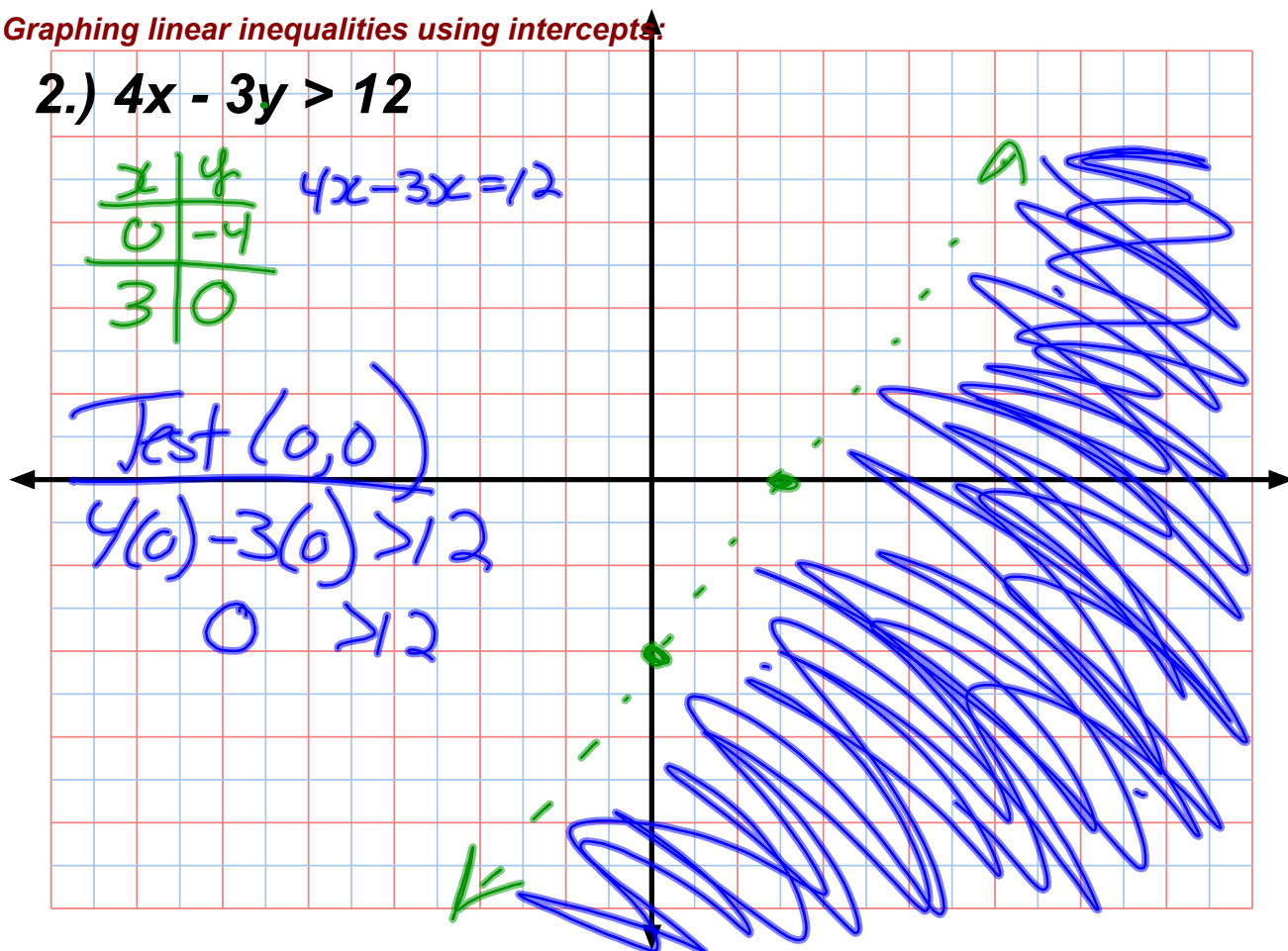
2.) $4x - 3y > 12$

x	y
0	-4
3	0

$4x - 3y = 12$

Test (0,0)

$$4(0) - 3(0) > 12$$
$$0 > 12$$



For Exercises 5–7, find three (x, y) pairs that satisfy the inequality and three (x, y) pairs that do not. Then, draw a graph showing all the solutions.

3.) $x - 4y \geq 8$

$$x - 4y = 8$$

x	y
0	-2
8	0

$$(2, -4)$$

$$(0, -2)$$

$$(6, -2)$$

Test $(0, 0)$

$$0 - 4(0) \geq 8$$

$$0 \geq 8$$

