Personal Math Trainer

12.2 Graphing Systems of Linear Inequalities - Class & Homework

HMH

1. Tell whether the ordered pair is a solution of

$$\begin{cases} y < 2x + 5 \\ 4y > -4x - 8 \end{cases}; (3, 2).$$

x y

$y < 2x + 5$

2	$2(3)+5$
2	$6+5$
$2 < 11$	

True

$4y > -4x - 8$

$4(2)$	$-4(3) - 8$
8	$-12 - 8$
$8 > -20$	

True

linear inequalities

The ordered pair [is ▼] a solution of the system of equations.

2.

Tell whether the ordered pair is a solution of $\begin{cases} y < 2x + 5 \\ 4y > -4x - 8 \end{cases}$; $(0, 6)$.

$(0, 6)$ does not satisfy $y < 2x + 5$.

$(0, 6)$ satisfies $4y > -4x - 8$.

Therefore, the ordered pair is not a solution of the system of equations.

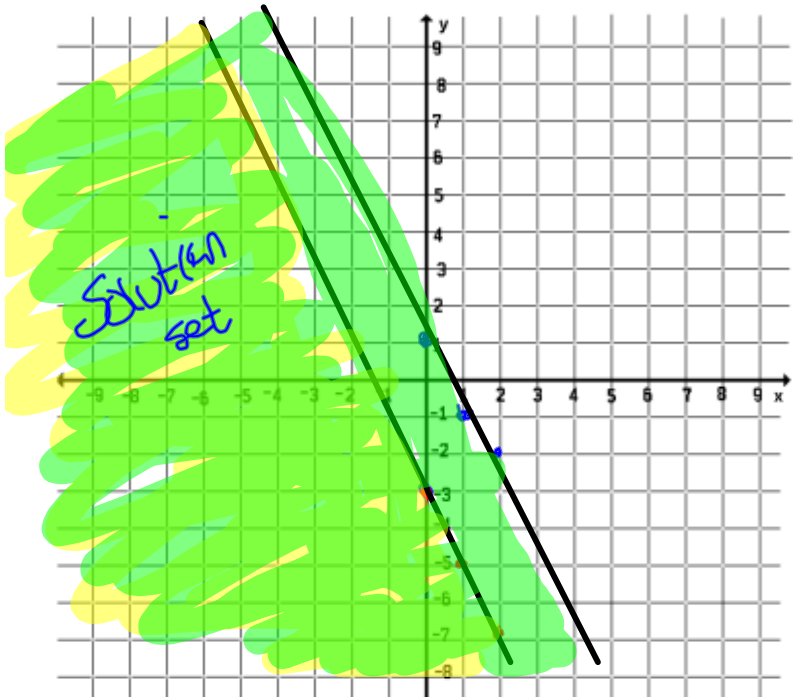
3. Part 1 out of 2

Select the graph of the system of linear inequalities.

$$\begin{cases} y \leq -2x - 3 \\ y \leq -2x + 1 \end{cases}$$

$m = -\frac{2}{1} = \frac{\text{Rise}}{\text{run}}$ $b = (0, -3)$

$m = -\frac{2}{1}$ $b = (0, 1)$



Remember the Concept

	Shade up	Shade down
Solid line	$\geq$	$\leq$
Dashed line	$>$	$<$

- Run to the Right
- Top number
  - − Go down
  - + Go up

Part 2

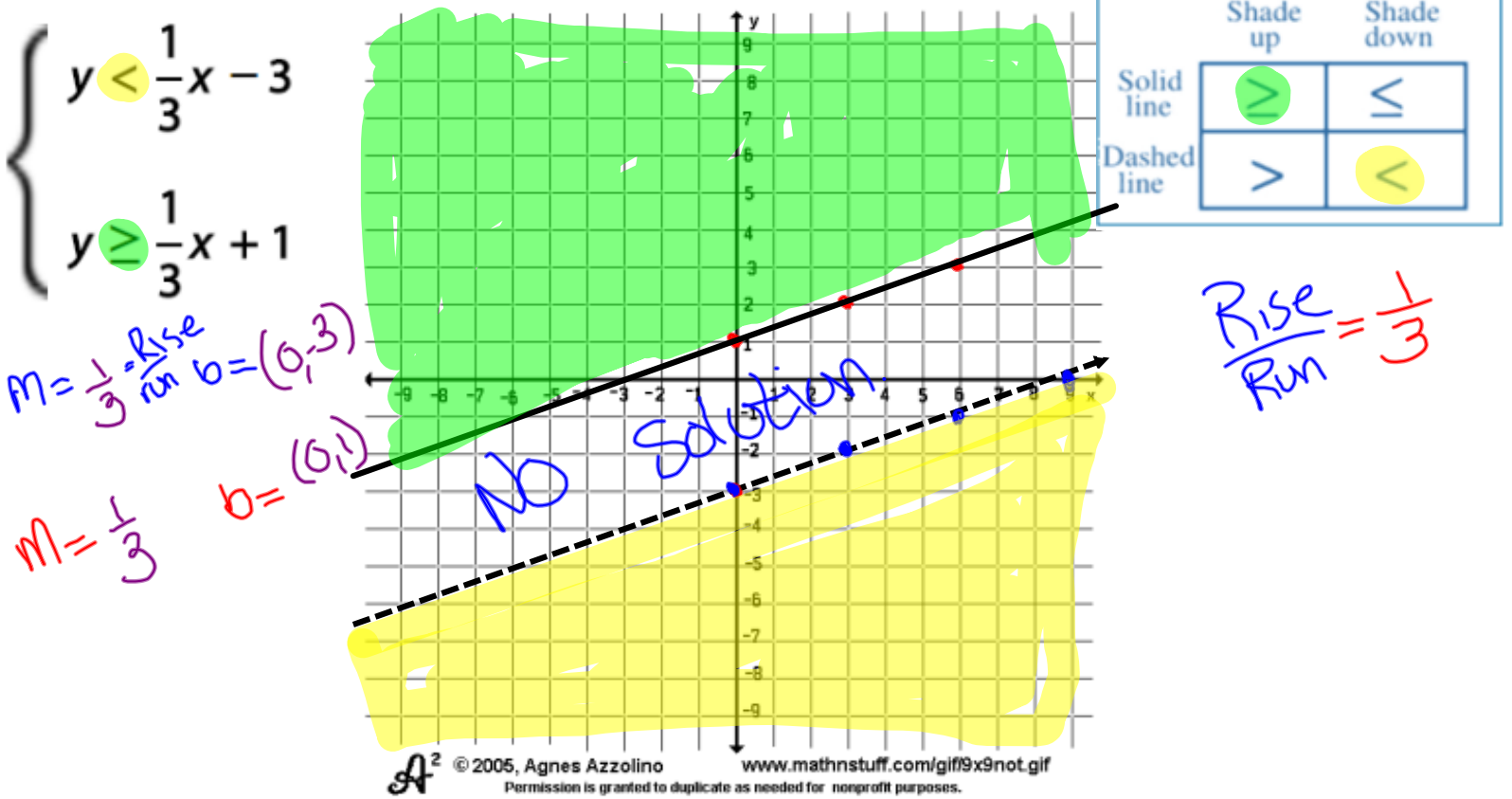
Complete the description of the ordered pairs which are solutions to the system.

The solutions are the same as the solutions to $y \leq -2x - 3$ ▼.

4. Part 1 out of 2

Select the graph of the system of linear inequalities.

$$\begin{cases} y \le \frac{1}{3}x - 3 \\ y \ge \frac{1}{3}x + 1 \end{cases}$$



Part 2 ✓

Complete the description of the ordered pairs which are solutions to the system.

This system has no ▼ solutions.

5. Part 1 out of 2

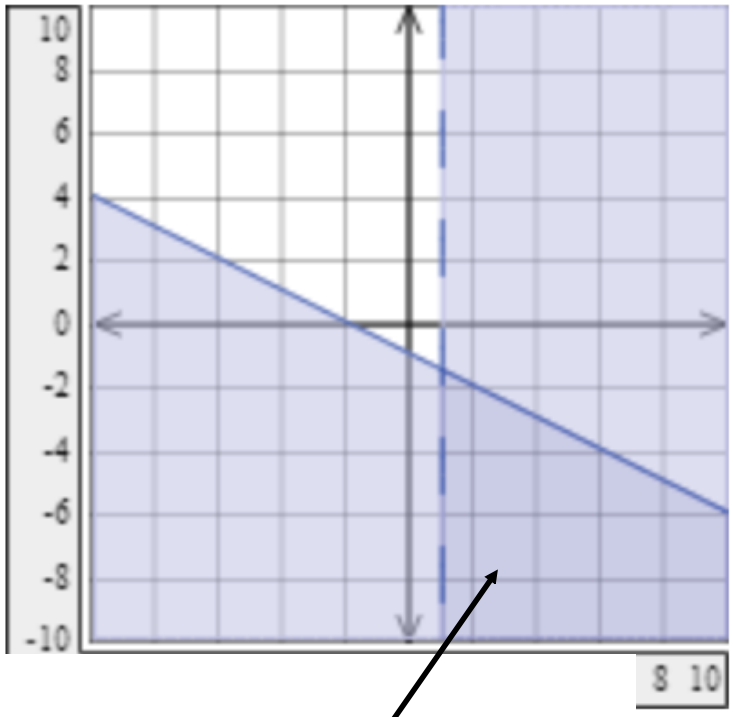
Select the graph of the system of linear inequalities.

$$\begin{cases} x > 1 \\ y \leq -\frac{1}{2}x - 1 \end{cases}$$

First: x > 1. The equation of the boundary line is x = 1. The inequality symbol is is > so use a dashed line. Shade to the right of the boundary line for solutions that are greater than the inequality.

Second. m = -1/2 and b = (0, -1).

The inequality symbol is is ≤ so use a solid line. Shade below the boundary line for solutions that are less than the inequality.



Part 2

Select the ordered pairs which are solutions to the system.

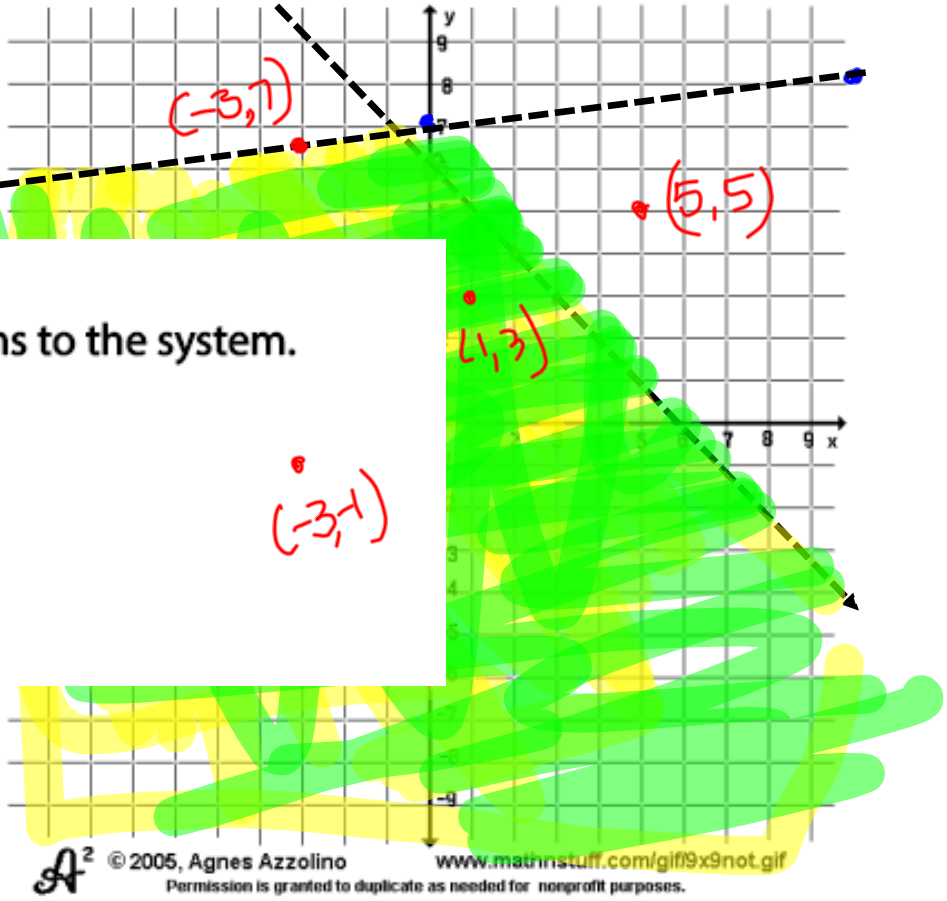
6. Part 1 out of 2

Select the graph of the system of linear inequalities.

$$\begin{cases} y < -x + 6 \\ y < \frac{1}{10}x + 7 \end{cases}$$

$m = -\frac{1}{1}$ $b = 6$

$m = \frac{1}{10}$ $b = 7$



Part 2 out of 2

Select the ordered pairs which are solutions to the system.

A (5, 5)

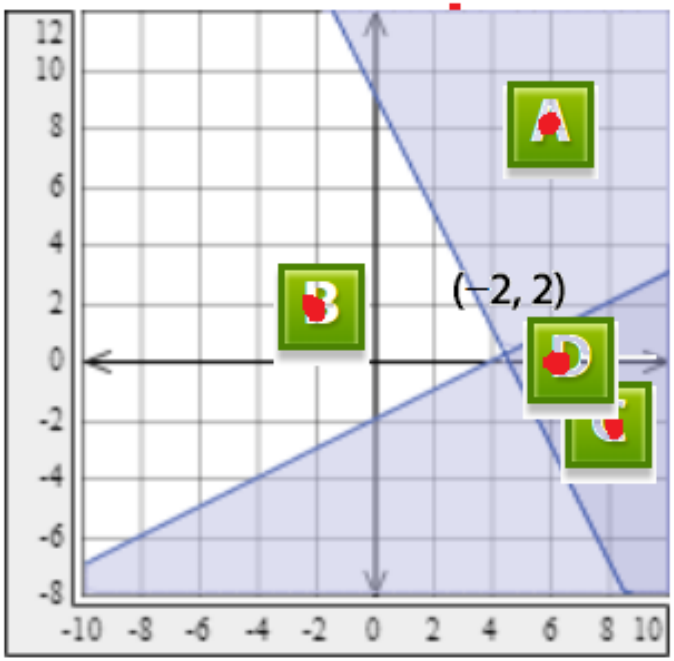
B (−3, 7)

(1, 3)

(−3, −1)

7.

$$\begin{cases} y \le \frac{1}{2}x - 2 \\ y \ge -2x + 9 \end{cases}$$



Part 2 out of 2

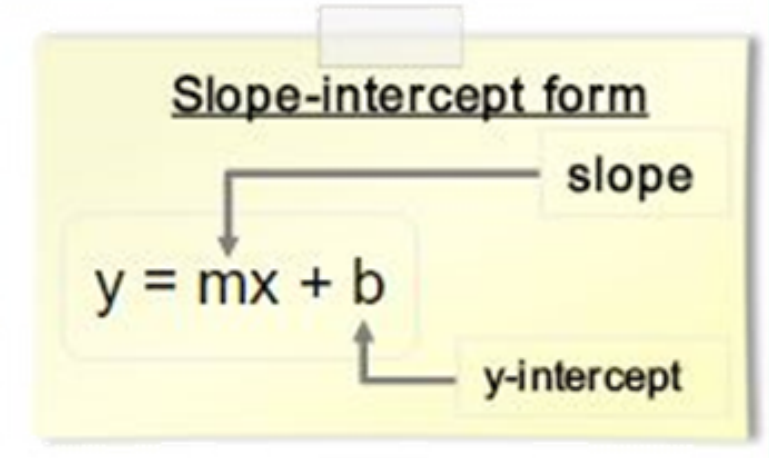
Select the ordered pairs which are solutions to the system.

8.

1	Solve the inequality for y (**y = mx + b**).
2	Graph the **boundary line** for the inequality. (< > ------ , ≤, ≥ ———).
3	**Shade** the region (>, ≥: Above, <, ≤: Below).
4	Repeat steps 1-3 for the second inequality.
5	**Shade** the region that overlap.

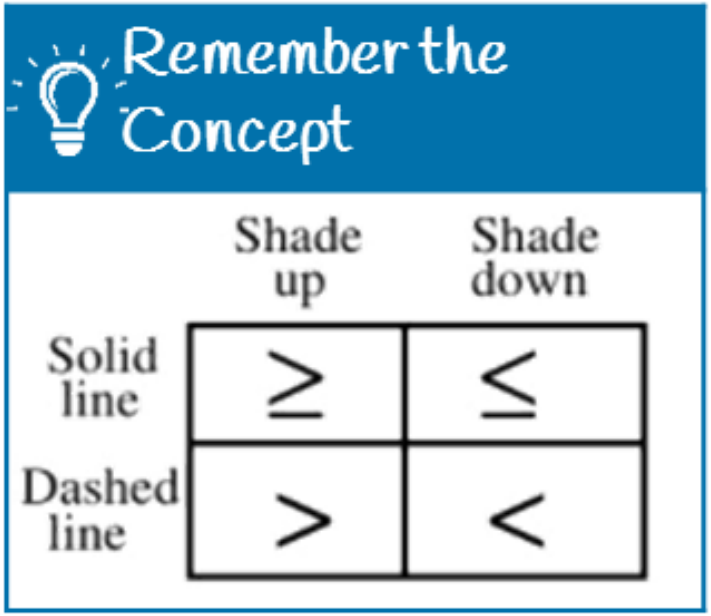
Remember the Concept

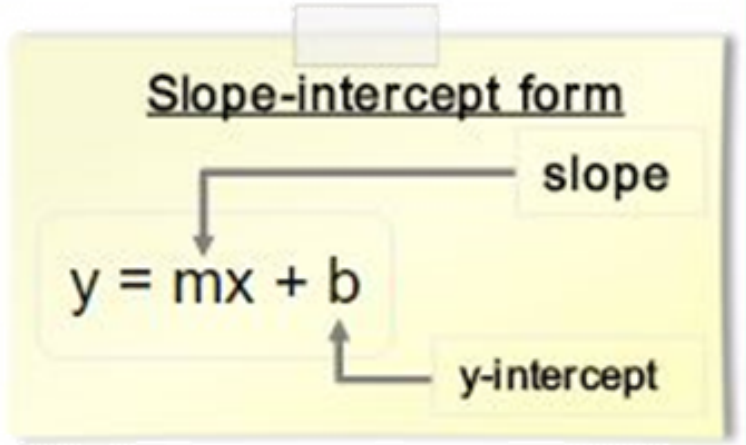
	Shade up	Shade down
Solid line	≥	≤
Dashed line	>	<



9.

1	Solve the inequality for y ($y = mx + b$).
2	Graph the **boundary line** for the inequality. ($< >$ – – – – – , $\leq, \geq$ ———).
3	**Shade** the region ($>, \geq$: Above, $<, \leq$: Below).
4	Repeat steps 1-3 for the second inequality.
5	**Shade** the region that overlap.





10. Select the graph of the system of linear inequalities.

$$\begin{cases} y \geq \frac{9}{4}x - 2 \\ y < \frac{9}{4}x - 7 \end{cases}$$

$m = \frac{9}{4}$ $b = -2$

$m = \frac{9}{4}$ $b = -7$