

# Class Work

# Answer Key

1.  $2x + 3y > -9$   
 $-x + y \leq 4$

Solve for  $y$  in order to graph!

$$2x + 3y > -9$$

$$3y > -9 - 2x$$

$$y > \frac{-9 - 2x}{3}$$

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

test point  $(0,0)$

$$0 > -3 - \frac{2}{3}(0)$$

$$0 > -3$$

True! Shade Towards

$$-x + y \leq 4$$

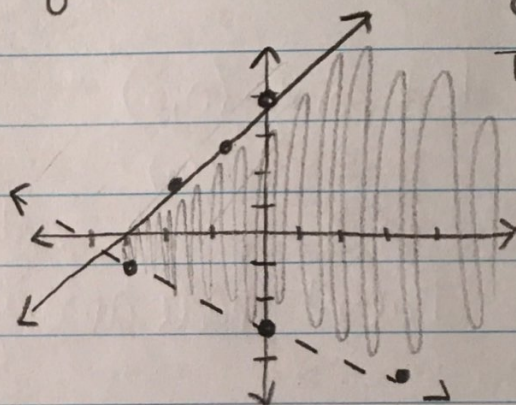
$$y \leq 4 + x$$

Test point  $(0,0)$

$$0 \leq 4 + 0$$

$$0 \leq 4$$

True!  
Shade Towards



2.  $f(x) > 2x^2 - 6x - 7$   
 $4x + f(x) \leq 10$

$$f(x) > 2x^2 - 6x - 7$$

$$f(x) \leq 10 - 4x$$

test point  $(0,0)$

$$0 \geq 2(0)^2 - 6(0) - 7$$

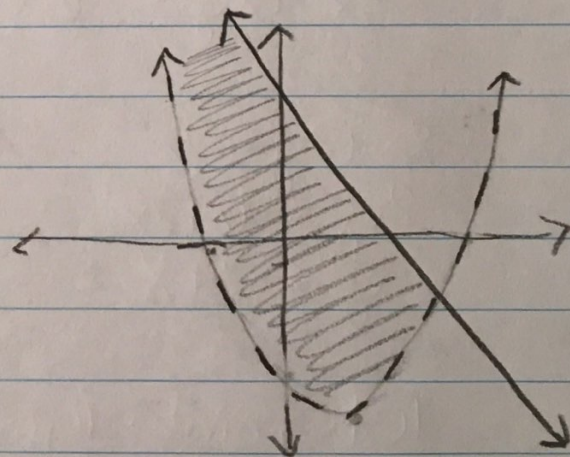
$$0 \geq -7$$

True!

$$0 \leq 10 - 4(0)$$

$$0 \leq 10$$

True!

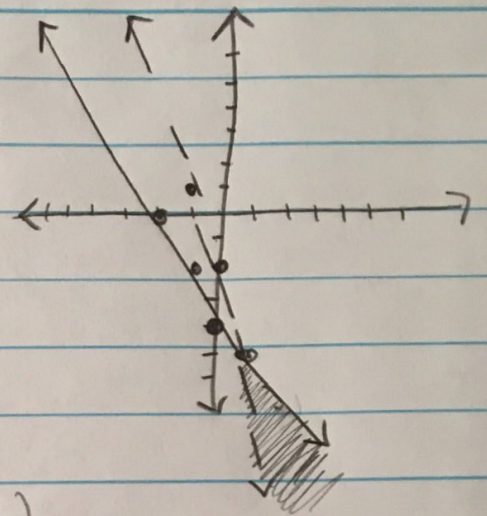




3.  $4x + 2y \leq -8$   
 $-x - 3y < 6$

$4x + 2y \leq -8$   
 $2y \leq -8 - 4x$   
 $y \leq -4 - 2x$

$-x - 3y < 6$   
 $-3y < 6 + x$   
 $y > -2 - \frac{1}{3}x$



test point:  $(0,0)$

$0 \leq -4 - 2(0)$

$0 \leq -4$

False! Shade away

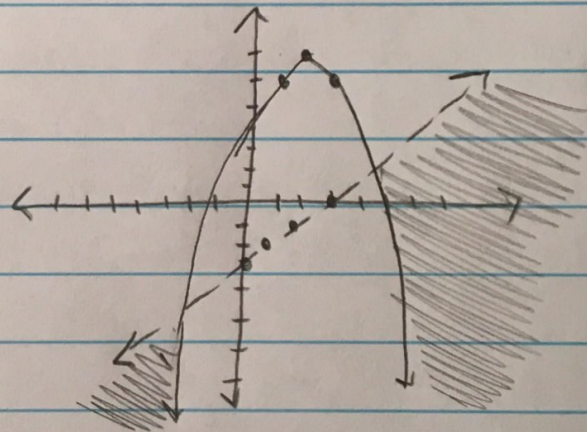
$0 > -2 - \frac{1}{3}(0)$

$0 > -2$

True! Shade towards

4.  $-(x-2)^2 + 7 \leq y$   
 $-2x + 2y < -6$

$-2x + 2y < -6$   
 $2y < -6 + 2x$   
 $y < -3 + x$



test point:  $(0,0)$

$-(0-2)^2 + 7 \leq 0$

$-(-2)^2 + 7 \leq 0$

$-(4) + 7 \leq 0$

$3 \leq 0$

False! Shade away

$0 < -3 + 0$

$0 < -3$

False! Shade away



5.

$x = \text{sundae}$   
 $y = \text{milkshake}$

$$\begin{cases} 3x + 2y \leq 25 \\ 4x + 6y \leq 37 \end{cases}$$

$$3x + 2y \leq 25$$

$$2y \leq 25 - 3x$$

$$y \leq \frac{25}{2} - \frac{3}{2}x$$

$$4x + 6y \leq 37$$

$$6y \leq 37 - 4x$$

$$y \leq \frac{37}{6} - \frac{2}{3}x$$

Test point:  $(0, 0)$

$$0 < \frac{25}{2} - \frac{3}{2}(0)$$

$$0 < \frac{25}{2}$$

$$0 < 12.5$$

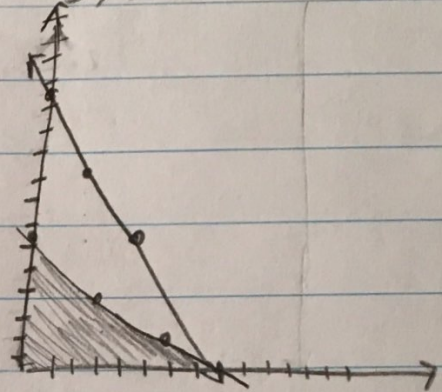
True!

$$0 \leq \frac{37}{6} - \frac{2}{3}(0)$$

$$0 \leq \frac{37}{6}$$

$$0 < 6.17$$

True



6.

$x = \text{dog-walking}$   
 $y = \text{car wash}$

$$\begin{cases} x + y \leq 20 \\ 7.5x + 6y \geq 92 \end{cases}$$

$$x + y \leq 20$$

$$y \leq 20 - x$$

test point:  $(0, 0)$

$$0 \leq 20 - 0$$

$$0 \leq 20$$

True!

$$7.5x + 6y \geq 92$$

$$6y \geq 92 - 7.5x$$

$$y \geq 15.33 - \frac{5}{4}x$$

$$0 \geq 15.33 - \frac{5}{4}(0)$$

$$0 \geq 15.33$$

False!

