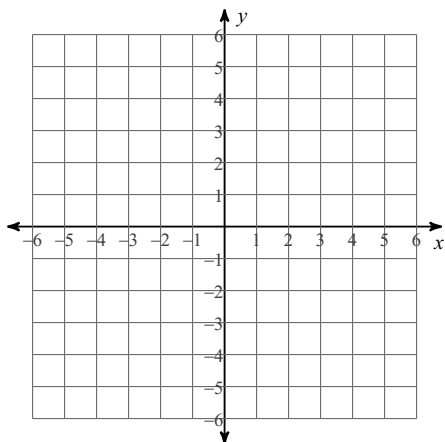


## SM2 HW #6-2 (Two-variable Inequalities)

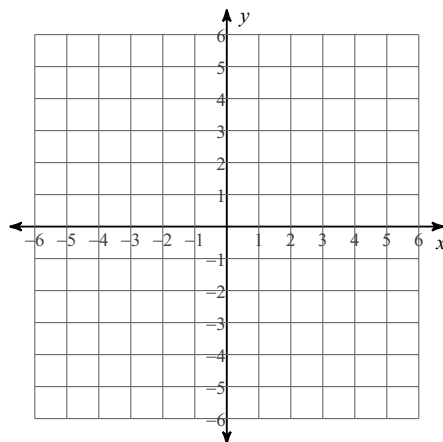
Date \_\_\_\_\_ Period \_\_\_\_\_

Sketch the graph of each linear inequality.

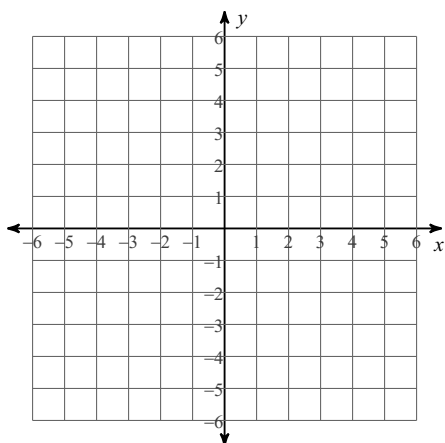
1)  $y \leq \frac{1}{2}x + 1$



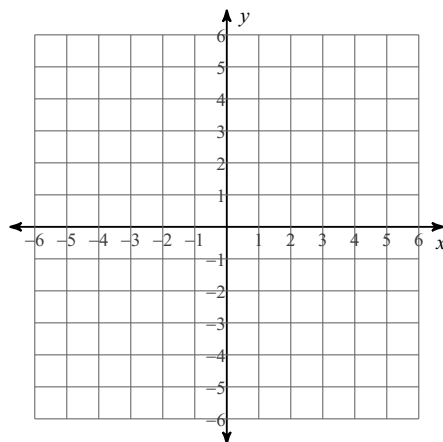
2)  $y \geq -\frac{5}{4}x$



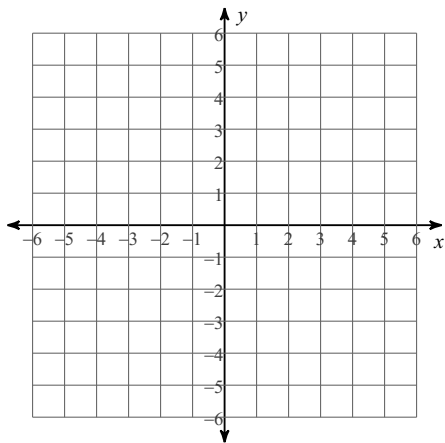
3)  $y < \frac{8}{3}x - 3$



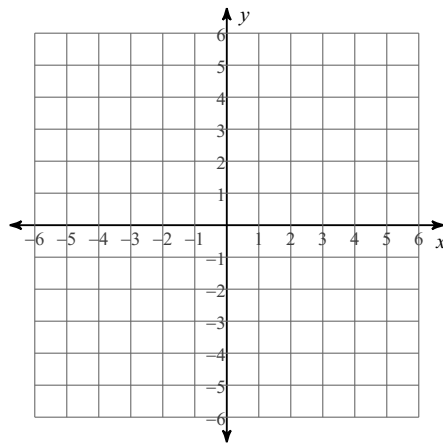
4)  $y < -5$



5)  $x \geq 3$

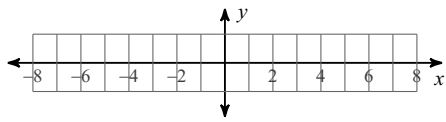


6)  $y < -2x + 2$



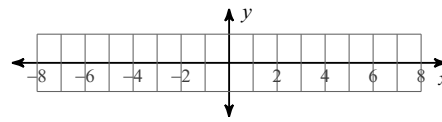
- 7) a) Graph the solution to the inequality.  
b) Write the solution in interval notation.

$$x^2 - 6x + 16 \geq 0$$



- 8) a) Graph the solution to the inequality.  
b) Write the solution in interval notation.

$$2x^2 - 8x - 24 \geq 0$$



- 9) Rewrite in vertex form:  
 $y = x^2 - 10x + 24$

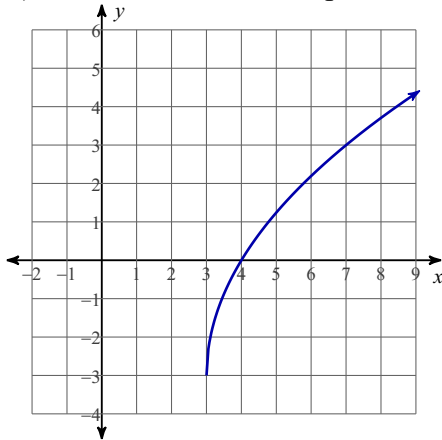
10)  $y = x^2 - 4x - 6$

- 11) Find the product:  
 $(7k - 1)^2$

12) Convert the intercept form:  
 $y = 2x^2 + 3x - 14$

- 13) a) What is the equation?

- b) Where is the function positive?



- 14) The width of a rectangle is 2 less than 3 times its length. If the area of the rectangle is 100 square feet:  
a) Write the equation that relates the information in the sentence above.  
b) Solve by graphing to find the length and width of the rectangle.

- 15) You have 80 feet of fence. You want to use a large barn to enclose one side of the corral. a) Draw and overhead view of the corral.  
b) Write the equation used to calculate the area.  
c) What is the maximum area enclosed by the fence?  
d) What are the side lengths of the corral?

- 16) A ball is thrown upward from the top of a 100 foot building (10 stories tall) initial velocity of 35 ft/sec. The equation modeling this situation is  $h(t) = -16t^2 + 35t + 100$   
a) What is the ball's maximum height above ground level?  
b) How many seconds after it was thrown will it reach the maximum height?  
c) How many seconds after it was thrown will it hit the ground?