Show work for full credit! For each graph, be sure to plot a minimum of 5 points!

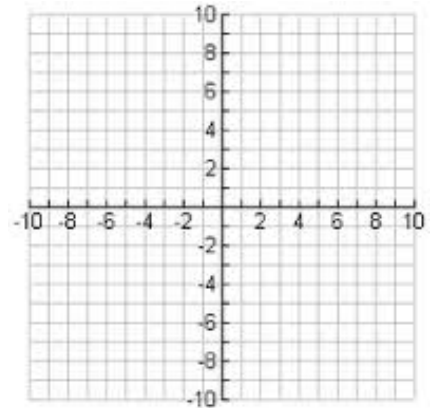1. Solve $\begin{cases} y \le -x^2 - 2x - 1 \\ y > x^2 + 4x + 1 \end{cases}$.

1) Answer:

$x^2 + 4x + 1$	
x	**y**

$-x^2 - 2x - 1$	
x	**y**

2. Solve the system of equations: $\begin{cases} y = x^2 - 11x - 36 \\ y = -12x + 36 \end{cases}$

2)
Answer:_____

_____

3. Solve the system of equations: $\begin{cases} y = x^2 - 6x + 9 \\ y + x = 5 \end{cases}$

3)
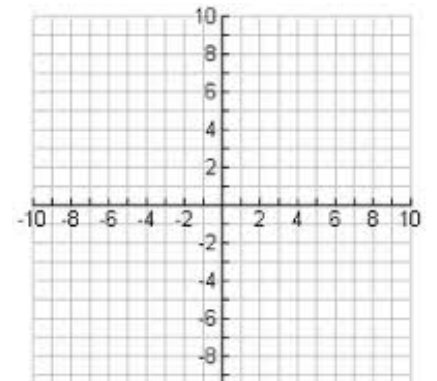Answer:_____

_____

4. Solve the system of equations: $\begin{cases} y = 2x + 6 \\ y = x^2 + 4x + 3 \end{cases}$
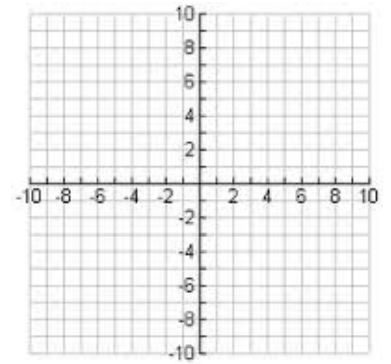
4)
Answer:_____

_____

5. Solve the system of inequalities: $\begin{cases} y \le x^2 - 2x + 1 \\ y \ge -2 \end{cases}$

5) Answer:

6. Graph the quadratic inequality: $y < -2x^2 + 4x - 4$

6) Answer:

7. Solve the system by elimination: $\begin{cases} y + x^2 - 4x = -1 \\ y = -x + 3 \end{cases}$

7)

Answer:_____

_____

8. Is (-3, 7) a viable solution for $y < x^2 + 2x - 10$? Solve algebraically and explain why or why not.

8) Answer:_____

_____

9. Is (6, 2) a viable solution for the system $\begin{cases} y \le x^2 + 8x - 1 \\ y < 2x + 1 \end{cases}$. Solve algebraically and explain why or why not.

9) Answer:_____

_____

10. Explain how it is possible for a system of equations involving one linear equation and one quadratic equation to have no real solution? Please provide a graph and an explanation.
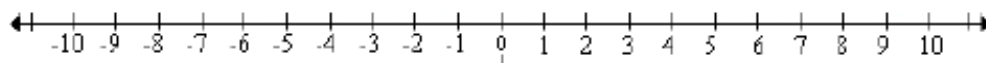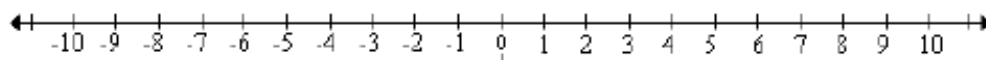
Inequalities

Name_____

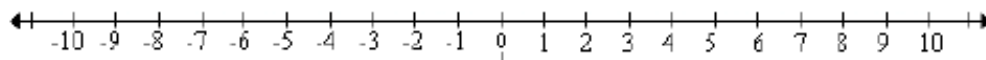*Solve the following inequalities and graph the solution sets on the number lines. Please show work.*
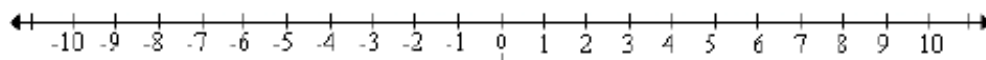
1. $x - 4 > 1$
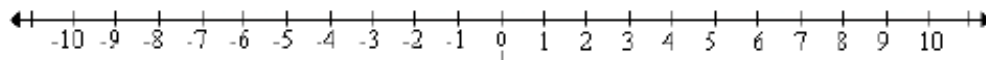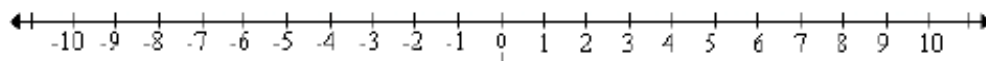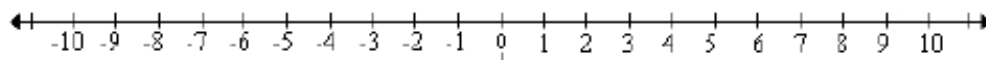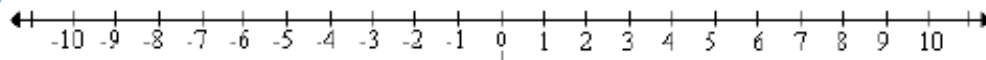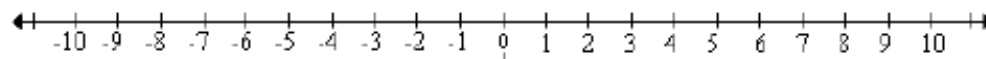
-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10
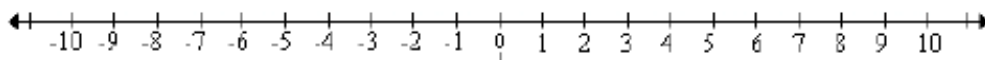
2. $x + 1 \leq 4$

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

3. $4y \geq 8$

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

4. $-5w < 10$

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

5. $4x > -28$

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

6. $27 > -9y$

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

7. $2y + 7 < 17$

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

8. $2(2x - 8) - 8x \leq 0$

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

9. $5x + 4 \leq 11 - 2x$

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

10. $5x - (x - 8) > 9 + 3(2x - 3)$

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

1. The quotient of a number and 15 is no greater than 450. What are the possible values for the number?

2. Keith and Michelle went out to dinner. The total cost of the meal, including the tip, came to $53.70. If the combined tip came out to $9.60, and each friend spent an equal amount, how much did each friend pay not including the tip?

3. Jason is saving up to buy a digital camera that costs $490. So far, he saved $175. He would like to buy the camera 3 weeks from now. What is the equation used to represent how much he must save every week to have enough money to purchase the camera?

4. Adrian works in New York City and makes $42 per hour. She works in an office and must get her suit dry cleaned everyday for $75. If she wants to make more than $260 a day, *at least* how many hours must she work?

5. Your brother has $2,000 saved for a vacation. His airplane ticket is $637. Write and solve an inequality to find out how much he can spend for everything else.

6. Your local bank offers free checking for accounts with a balance of at least $500. Suppose you have a balance of $516.46 and you write a check for $31.96. How much do you need to deposit to avoid being charged a service fee?