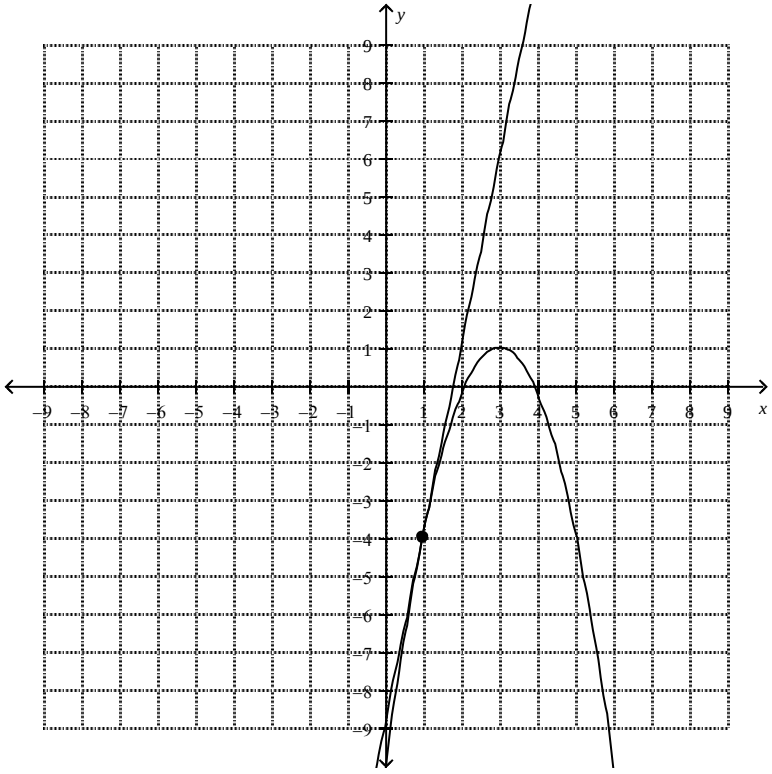
**Math 2200** **Chapter 8 & 9 Review** **Name:**_____

12 **Part I:** **Multiple Choice. Write the correct answer in the space provided at the end of this section.**

Formulae: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

1. What is the solution to the system of equations shown below?



(A) $(-1, -4)$

(B) $(-1, 4)$

(C) $(1, -4)$

(D) $(1,4)$

2. How many times does a line tangent to a parabola intersect the parabola?

(A) 0

(B) 1

(C) 2

(D) 3

3. The line $y = 9x - 4$ intersects the quadratic function $y = x^2 + 7x - 3$ at one point. What are the coordinates of the point of intersection?

(A) $(-1, -5)$

(B) $(-1, 5)$

(C) $(1, -5)$

(D) $(1, 5)$

4. Which system of equations could be used to solve the given problem:

*Two numbers differ by 14. When the smaller is subtracted from the square of the larger, the result is 394. What are the numbers?*

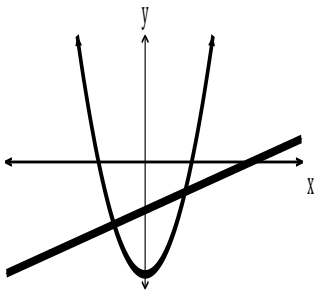
(A) $\begin{cases} x - y = 14 \\ x^2 - y = 394 \end{cases}$

(B) $\begin{cases} x - y = 14 \\ y^2 - x = 394 \end{cases}$

(C) $\begin{cases} x - 14 = y \\ y - x^2 = 394 \end{cases}$

(D) $\begin{cases} x - 14 = y \\ x - y^2 = 394 \end{cases}$

5. What are the solutions for the system shown?




(A) $(-3, 0)$ and $(3, 0)$

(B) $(-2, -4)$ and $(2, -2)$

(C) $(0, -3)$ and $(0, -6)$

(D) $(0, -3)$ and $(6, 0)$

6. The line $y = 3x$ intersects the quadratic function $y = 3x^2$ at two points. What are the coordinates of the two points of intersection?

(A) $(-1, -3)$ and $(0, 0)$

(B) $(-1, 3)$ and $(0, 0)$

(C) $(1, -3)$ and $(0, 0)$

(D) $(1, 3)$ and $(0, 0)$

7. How many solutions does the following system of equations have?

$$y = 3x - 13$$
$$y = 3x^2 - 2x - 4$$

(A) 0

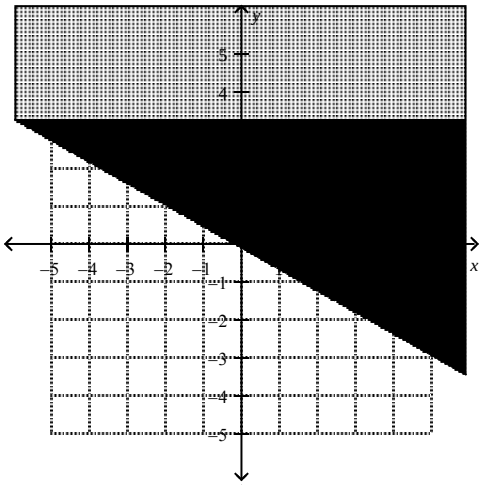
(B) 1

(C) 2

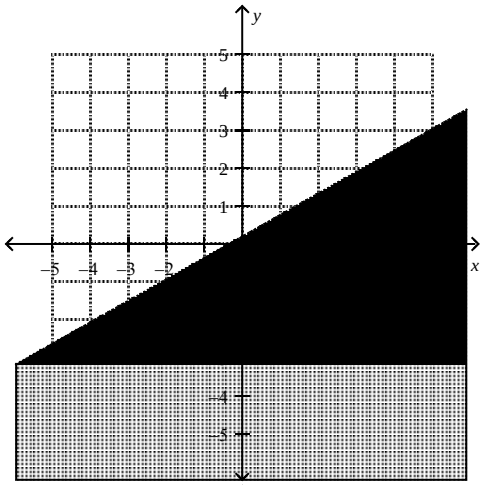
(D) 3

8. Which is the graph of $-4x + 7y > 1$?

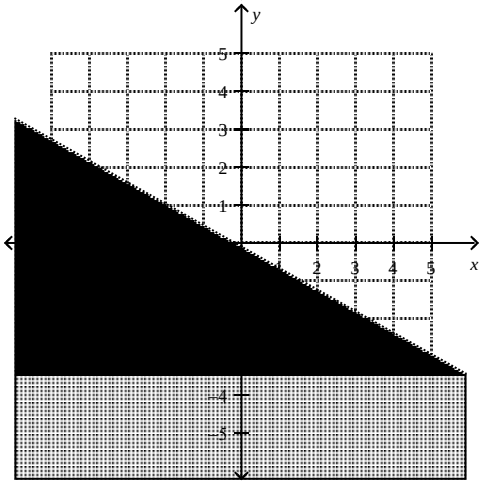
(A)



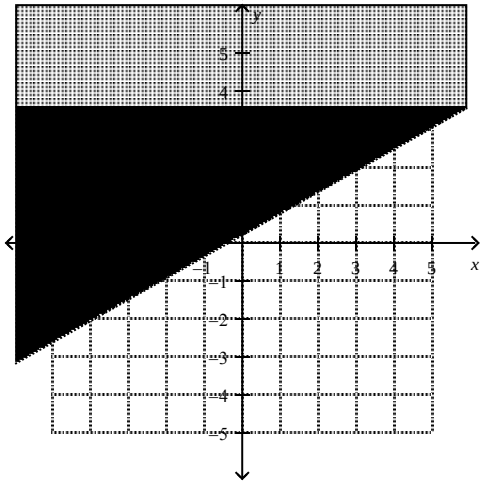
(C)



(B)



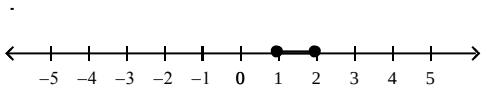
(D)



9. Which graph represents the solution to the inequality $2x^2 - 6x + 4 \geq 0$?

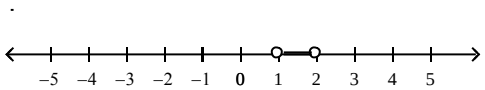
(A)


(B)



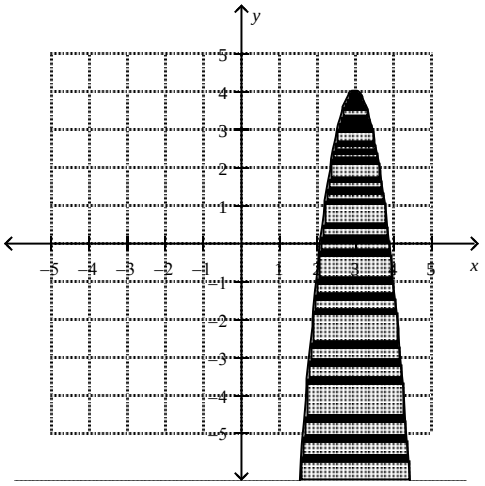

(C)


(D)

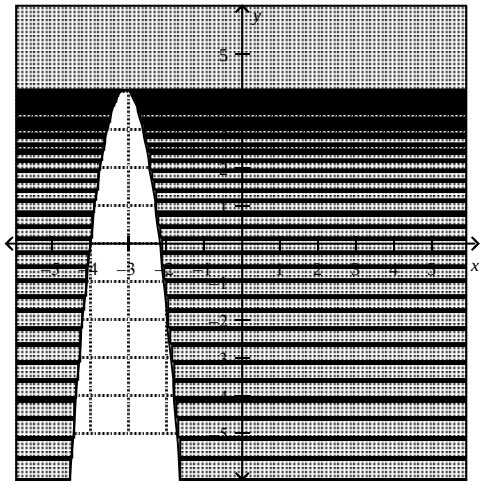



10. Which graph represents the solution to the inequality $y \leq -5(x + 3)^2 + 4$?

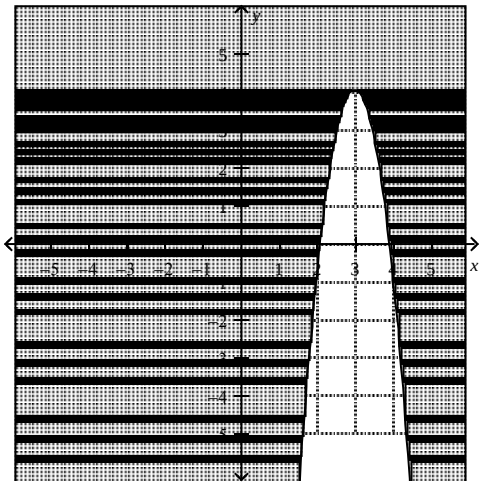
(A)



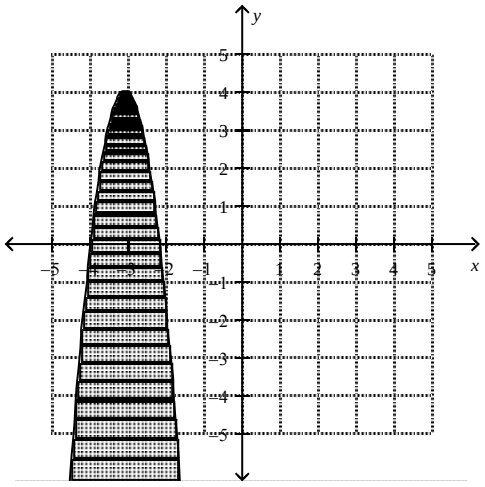

(C)




(B)




(D)



11. What is the solution set to the inequality $-2x^2 + 8x - 6 > 0$?

(A) $\{x|1 < x < 3, x \in R\}$

(B) $\{x| -3 < x < -1, x \in R\}$

(C) $\{x|x < 1, x > 3, x \in R\}$

(D) $\{x|x < -3, x > -1, x \in R\}$

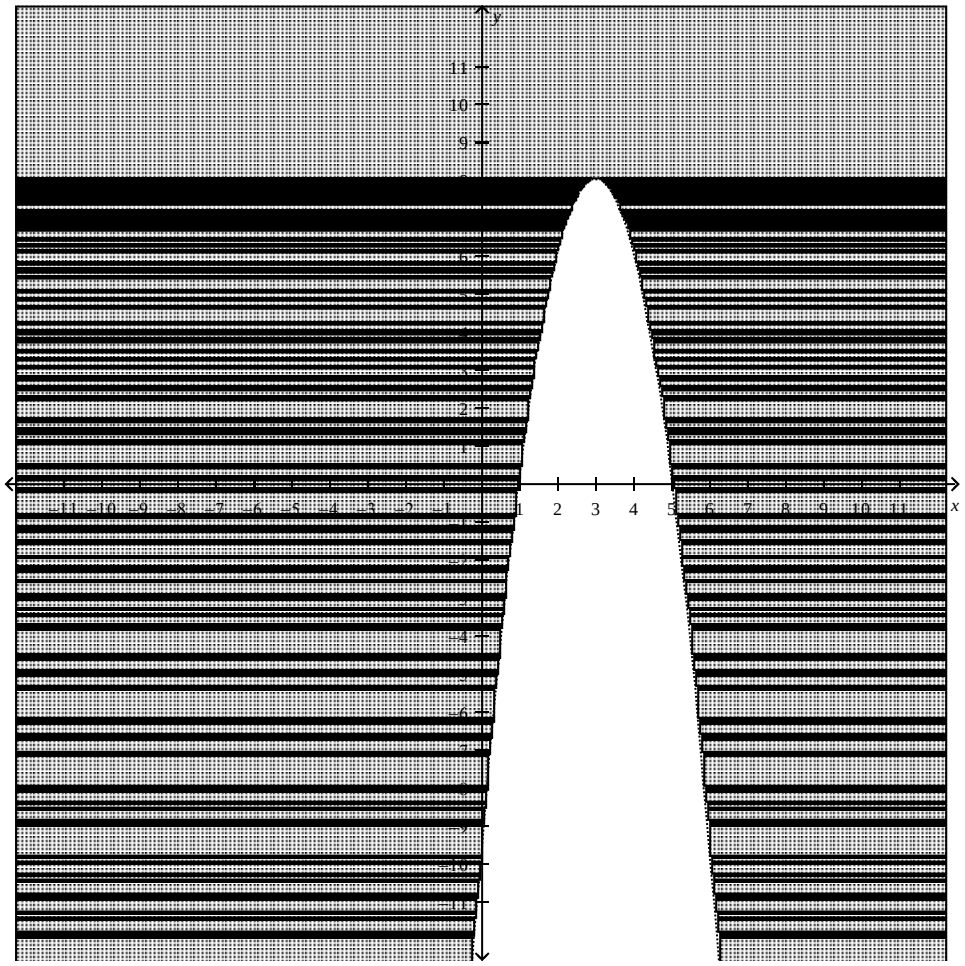
12. Which point satisfies the inequality $y > -2(x-3)^2 + 8$?

(A) $(0, 1)$

(B) $(1, 0)$

(C) $(2, 1)$

(D) $(3, 8)$




**Answers to multiple choice.**

**1.____** **2.____** **3.____** **4.____** **5.____** **6.____**

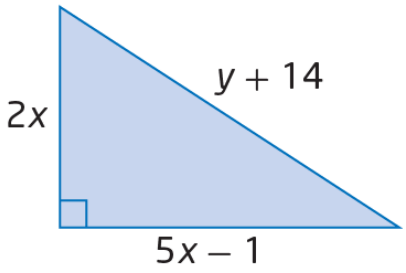
**7.____** **8.____** **9.____** **10.____** **11.____** **12.____**

21 **Part II: Constructed Response. Answer each question in the space provided. Show all workings.**

4 13. Algebraically determine the solution of the following system of equations:

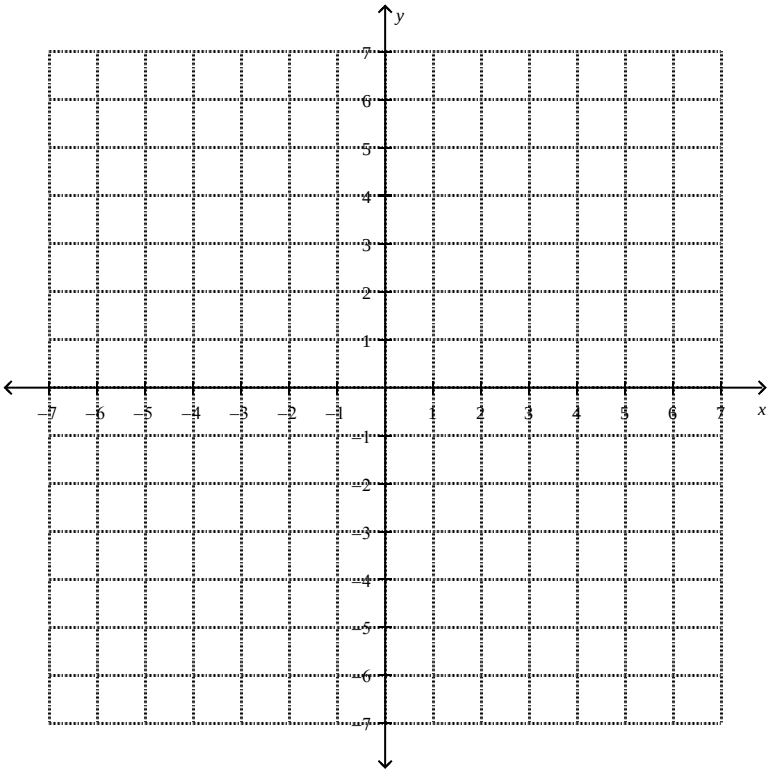
$$\begin{aligned} 3x - y - 5 &= 0 \\ -4x &= y + 2x^2 + 1 \end{aligned}$$

4 14. The perimeter of the right triangle shown below is 60 m. The area of the triangle is 10y square metres. What are the dimensions of the triangle?

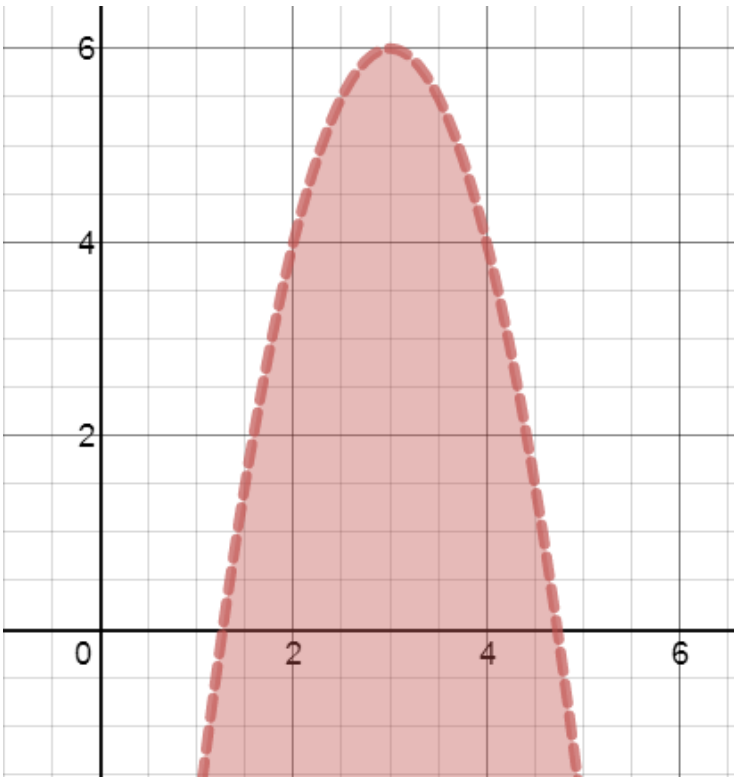


4 15. A parachutist jumps from an airplane and immediately opens his parachute. His altitude, $y$, in metres, after $t$ seconds is modelled by the equation $y = -4t + 300$. A second parachutist jumps 5 s later and free-falls for a few seconds. Her altitude, in metres, during this time, is modelled by the equation $y = -5(t - 5)^2 + 300$. When does she reach the same altitude as the first parachutist?

3 16. Graph the inequality $3x + 2y > 8$




3 17. Algebraically determine the inequality the makes the following graph:



3 18. A square storage area measures 10 m on a side. By how much must each side be shortened to decrease this area to less than half the original area?