Name _____ **Hour** _____ **LESSON 4.9 Algebra 2**

For use with pages 300-307

Determine whether the ordered pair is a solution of the inequality.

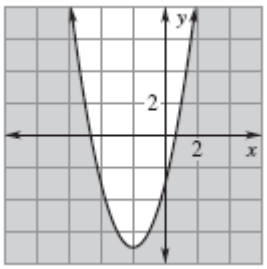
1. $y < x^2 + 4x + 1$ (0, 0) 2. $y > x^2 - x + 4$ (2, 7) 3. $y \geq 2x^2 + 3x + 2$ (−3, 4)

Match the inequality with its graph.

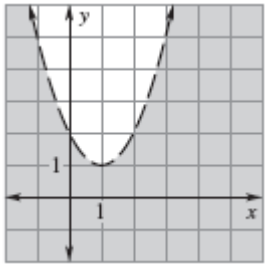
4. $y \geq x^2 + 2x - 2$ **5.** $y \leq -x^2 - 2x + 2$ **6.** $y \leq x^2 + 4x - 3$

7. $y < x^2 - 2x + 2$ **8.** $y > -x^2 + 2x + 2$ **9.** $y > -x^2 - 4x + 3$

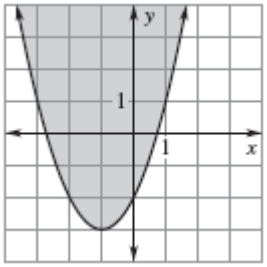
A.



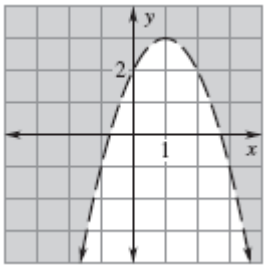
B.



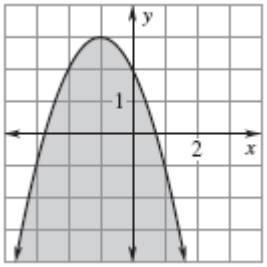
C.



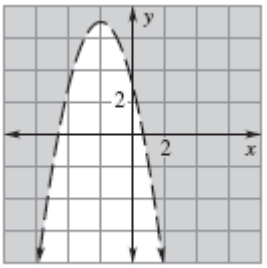
D.



E.

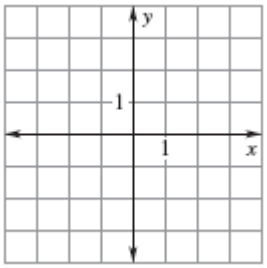


F.

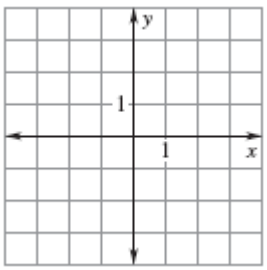


Graph the inequality.

10. $y \geq x^2 + 2x$



11. $y \leq x^2 - 3$



Solve the inequality algebraically.

12. $x^2 - 5x - 14 > 0$

13. $x^2 + 10x + 9 < 0$

14. $x^2 - 11x \geq -28$

15. $x^2 - 11x + 24 \leq 0$

16. $2x^2 - 5x - 3 \leq 0$

17. $4x^2 < 25$

18. Construction Incident A hammer is dropped from the top of a 500 foot tall building being constructed. The height of the hammer can be modeled by $h = -16t^2 + 500$ where h is the height (in feet) and t is the time (in seconds). A construction worker, who is busy on a floor that is 100 feet from the ground, sees the hammer fall. Write an inequality that shows when the hammer is above the construction worker.

19. For what values of t is the hammer above the construction worker? Show evidence/how you got your answer.

20. Football The path of a football kicked from the ground can be modeled by $h = -0.02x^2 + 1.2x$ where h is the height (in yards) and x is the horizontal distance (in yards) from where the ball is kicked. The crossbar on a field goal post is 10 feet above the ground.

21. Write an inequality to find the values of x where the ball is high enough to go over the crossbar.

22. Solve the inequality.

23. A player attempts to kick a field goal from 52 yards away. Will the ball have enough height to go over the crossbar from this distance?