Name ________________  Algebra Quadratic Graphing TEST REVIEW

Graph the following quadratic functions:

1. $y < x^2 - 5$

2. $y \leq -2x^2 + 1$

3. $y \geq \frac{1}{2}x^2 - 4$

4. $y > -x^2 + 6$
5. \( y = -2x^2 - 7x + 1 \)

AOS ___________

Vertex ___________

y-intercept ___________

domain ___________

range ___________

\[ \begin{array}{c}
\end{array} \]

6. \( y = -\frac{1}{3}(x + 3)^2 - 2 \)

AOS ___________

Vertex ___________

y-intercept ___________

domain ___________

range ___________

\[ \begin{array}{c}
\end{array} \]

7. Write the functions in order from most narrow to widest

A. \( y = x^2 - 3x \)  
   B. \( y = -3x^2 + 5x - 1 \)  
   C. \( y = -\frac{2}{3}x^2 + 2x - 1 \)  

D. \( y = 5x^2 - 2 \)  
   E. \( y = \frac{1}{5}x^2 + 5 \)
Without graphing, answer the following:

8. \[ y = \frac{1}{4}(x - 24)^2 + 50 \]
   
   A. AoS _________
   
   B. vertex _________
   
   C. y-intercept _________
   
   D. Domain _________
   
   E. Range _________
   
   F. vertex is max/min? _________
   
   G. graph is more wide or narrow than \( y = x^2 \) ? _________

For #10-14 write a function in vertex form:

10. \[ y = -2x^2 - 12x + 20 \]
   
11. \[ y = 5x^2 + 40x + 12 \]

12. contains (0, 104) vertex is (12, 8)

13. contains (0, -2) vertex (-1, -7)
15. A ball is thrown with an initial upward velocity of 50 ft/s. Its height \( h \) in feet after \( t \) seconds is given by the function \( h = -16t^2 + 50t + 6 \).

A. After how many seconds does the ball reach its maximum height? 

B. What is the maximum height? 

16. A small company markets a new toy. The function \( S = -64p^2 + 2400p \) predicts in dollars, the total sales \( S \) as a function of the price \( p \) of a toy.

A. If the price is $25, what are the total sales? 

B. Which price will produce the highest sales? 

C. What is the maximum sales predicted? 