

Practice for Quiz

I. Describe the following transformations on the function $y = x^2$. Identify the vertex

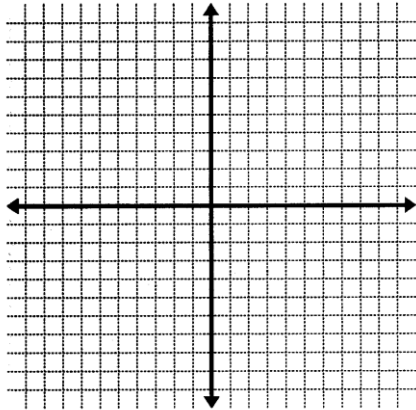
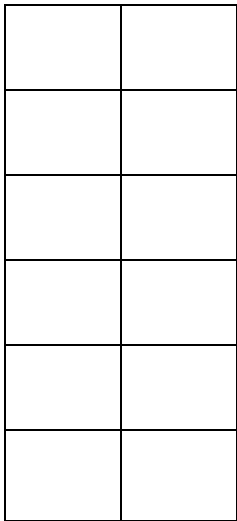
1. $y = -(x - 2)^2$

2. $y = 3x^2 + 1$

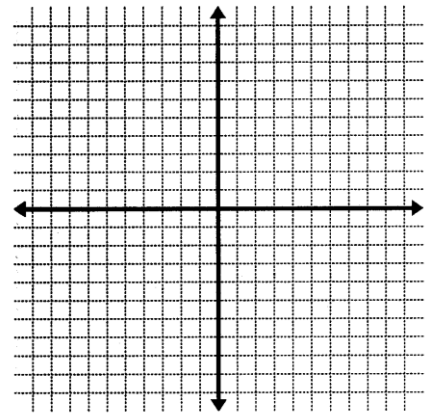
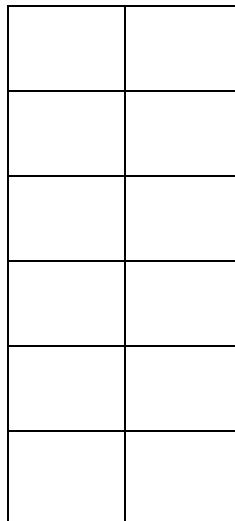
3. $y = 9[3(x + 3)]^2 - 1$

Graph the following.

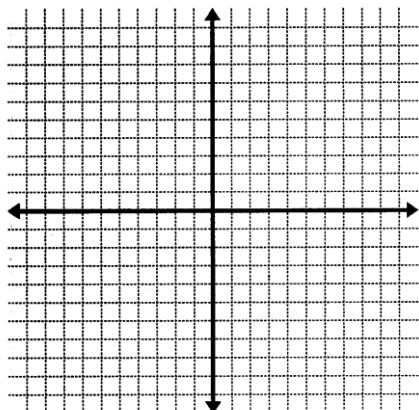
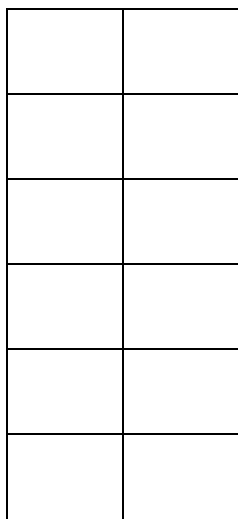
4. $y = -\frac{1}{2} [2(x + 3)]^2$ (convert to standard)



5. $y = 9 [3(x + 3)]^2 - 1$ (convert to standard)



6. $y = -x^2 - 5$



Multiply.

9. $(10a-7b)(10a+7b)$ 10. $(x-3y)(x+3y)$

11) $(2x-1)(3x^2-4x+3)$

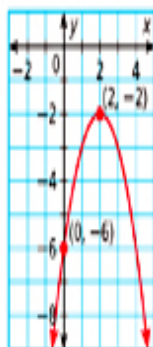
II. Write the equation for the function $y = x^2$ with the following transformations. Then identify the vertex.

12. reflect across the x-axis and shrink by a factor of .5	13. stretch by a factor of 4, shift left 3 and down 2
14. If you wanted to shift $y = -3(x - 2)^2 + 1$ down 4 and left 5, what would be the new equation?	15. If you wanted to shift $y = x^2 + 3$ left 2 and up 5, what would be the new equation?
16. If you wanted to shift $y = (x + 4)^2$ down 3 and right 2, what would be the new equation?	17. If you wanted to shift $y = -x^2$ right 3 and up 5, what would be the new equation?

Use the graph for Exercises 46 and 47.

46. Which best describes how the graph of the function $y = -x^2$ was transformed to produce the graph shown?

- (A) Translation 2 units right and 2 units up
- (B) Translation 2 units right and 2 units down
- (C) Translation 2 units left and 2 units up
- (D) Translation 2 units left and 2 units down



47. Which gives the function rule for the parabola shown?

- (F) $f(x) = (x + 2)^2 - 2$
- (G) $f(x) = -(x + 2)^2 - 2$
- (H) $f(x) = (x - 2)^2 - 2$
- (J) $f(x) = -(x - 2)^2 - 2$

48. Which shows the functions below in order from widest to narrowest of their corresponding graphs?

$m(x) = \frac{1}{6}x^2$ $n(x) = 4x^2$ $p(x) = 6x^2$ $q(x) = -\frac{1}{2}x^2$

- (A) m, n, p, q
- (B) q, m, n, p
- (C) m, q, n, p
- (D) q, p, n, m

49. Which of the following functions has its vertex below the x-axis?

- (F) $f(x) = (x - 7)^2$
- (G) $f(x) = x^2 - 8$
- (H) $f(x) = -2x^2$
- (J) $f(x) = -(x + 3)^2$