Reading Questions for Section 5.5 and Ch 5 Tools Name_____
(22 pts) Due: _____

(2) 1. Work through Example 1 of Section 5.5 by graphing both $f(x) = x^2$ and $g(x) = -2(x+1)^2 + 3$ on your grapher in an appropriate viewing window. Knowing what you do from Sections 5.1-5.3, complete the blanks, choosing from the set of words {up, down, left, right}. The graph of $g(x)$ is obtained from the function $f(x)$ by shifting the graph of $f(x)$ _____ 1 unit, followed by stretching it vertically by 2, followed by reflecting it vertically, followed by shifting it _____ 3 units.

(1) 2. Write the function $g(x)$ in Example 1 of Section 5.5 in *standard form*: $g(x)$ =_____

(1) 3. The standard form for a quadratic function makes it easy to identify the vertical (or *y*-) intercept.
A. True
B. False

(2) 4. What is the vertical intercept of the function $g(x)$ in Example 1 of Section 5.5? (____, ____)

(1) 5. If $a > 0$, then the graph of the parabola, $y = -ax^2$ opens
A. downward B. upward C. to the left D. to the right

(1) 6. Which of these forms for a quadratic function make it easiest to identify the zeros?
A. standard form B. vertex form C. *x*-intercept form D. factored form E. None of these

(1) 7. How does the text convert a quadratic function from *vertex form* to *standard form*?
A. by completing the square
B. by performing a series of shift transformations and either a vertical stretch or a vertical compression
C. by multiplying out the squared term and combining like terms
D. by applying the quadratic formula or factoring the expression

(1) 8. How does the text convert a quadratic function from *standard form* to *vertex form*?
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(3) 9. Convert the formula for the parabola in Example 4 to *standard* form, $f(x) = ax^2 + bx + c$.
Report the values of *a*, *b*, and *c*: a = _____, b = _____, and c = _____.

(4) 10. Consider the parabola $y = 2(x-1)(x-3)$ in Example 4.
a. What is the equation of the axis of symmetry? x = ____
b. What is the *x*-coordinate of the vertex? _____ Hint: Observe the symmetry.
c. What is the *y*-coordinate of the vertex? _____ Hint: You have the equation.
d. Convert the formula for the parabola in Example 4 to *vertex* form by using a shift transformation of $y = 2x^2$ similar to Example 1. y = _____

(4) 11. Match the following quadratic functions to their vertex point.

____ $f(x) = x^2 - 1$	A. (0, 1)
____ $u(x) = x^2 + 1$	B. (1, 0)
____ $v(x) = (x + 1)^2$	C. (0,−1)
____ $w(x) = (x - 1)^2$	D. (−1, 0)

(1) 12. If $y = x^2 + bx + c$ then to complete the square you add and subtract which one of the following values?
A. $b/2$ B. b/c C. $(b/2)^2$ D. $\sqrt{b/2}$ E. None of these