

NAME \_\_\_\_\_

DATE \_\_\_\_\_

PER \_\_\_\_\_

SHOW ALL THE WORK CLEARLY.

1. Which **value of b** will make the left side of the equation  $x^2 + bx + \frac{49}{4} = 0$  a perfect square trinomial?  
 A.  $\frac{7}{2}$       B.  $\frac{49}{2}$       C. 7      D.  $\frac{7}{4}$

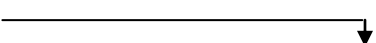
2. The point (3,5) is on the graph of the quadratic equation  $y = -x^2 + 5x - 1$ . Which point is the reflection of (3,5) over the axis of symmetry of the parabola?  
 A. (2, 5)      B. (-3, 5)      C. (3, -5)      D. (-3, -5)

3. The graph of which of the following functions represents a translation of the graph of  $f(x) = -x^2$  four units to the right and three units down?  
 A.  $f(x) = (x - 4)^2 - 3$       B.  $f(x) = (x - 3)^2 + 4$   
 C.  $f(x) = -(x + 3)^2 - 4$       D.  $f(x) = -(x - 4)^2 - 3$

4. Which is the equation of the axis of symmetry for the graph of  $y = 2x^2 - 8x + 9$ ?  
 A.  $x = 8$       B.  $x = 2$       C.  $x = \frac{9}{2}$       D.  $x = -2$

5. Which is the vertex of the graph of  $y = 3x^2 + 12x - 5$ ?  
 A. (-2, -17)      B. (4, 91)      C. (-4, -5)      D. (2, 31)

6. What is the nature of the solutions of  $x^2 - 4x + 1 = 0$ ?  
 A. one real      B. two irrational      C. two rational      D. one irrational

7. A picture is 2 in longer than it is wide and has an area of 140 in<sup>2</sup>. It is placed in a frame that is 2 in wider than the picture on each side.  
 a) Draw and label the picture   
 b) Determine the dimensions (length and width) of the framed picture to the nearest inch.

1)
2)
3)
4)
5)
6)
7)b) Len: _____ Width: _____
8)
9)
10)
11)
12)
Restr:
13)
Restr:
14)
Restr:

**Perform the following operations. All answers in *simplest form*.**

$$8) \frac{5g+2}{5g-2} \div \frac{3g-1}{1-3g}$$

$$9) \frac{x^3-2x^2-63x}{x^2-49} \div \frac{x^2-81}{x^2-7x}$$

$$10) \frac{5x+1}{2x+6} + \frac{x+4}{5x+15}$$

$$11) \frac{4}{5x} + \frac{5}{6x} - \frac{6}{7x}$$

**Simplify each rational expression, stating any restrictions on the variables.**

$$12) \frac{4a^3b^2c}{7ac^2}$$

$$13) \frac{q^2-7q}{q-7}$$

$$14) \frac{x-7}{x^2-2x-35}$$