PRE-CALCULUS **Assignment #_____**

MR-4

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