Name: _____

13.REV.3 – END OF UNIT REVIEW

Past due on: _____ Period: _____

1. Mr. Vanek writes the trinomial $6x^2 + 26x + 28$ on the board and asks Wanda and Cyril to factor it. Their work is shown below. Determine which student factored the trinomial correctly. Identify any mistakes that were made in either solution and correct them.

Wanda

$6x^2 + 26x + 28 = (3x + 7)(2x + 4)$

Cyril

$6x^2 + 26x + 28 = 2(3x^2 + 13x + 14)$
$= 2(3x + 7)(x + 2)$

2. Ms. Frances writes the expression $36x^2 - 100$ on the board and asks her students to factor it completely. The work of two of her students, Justin and Nakia, is shown. Determine which student factored the expression correctly. Then, identify the mistake the other student made. Explain how you determined your answer.

Justin

$36x^2 - 100 = (6x + 10)(6x - 10)$
$= 2(3x + 5)(3x - 5)$

Nakia

$36x^2 - 100 = 4(9x^2 - 25)$
$= 4(3x + 5)(3x - 5)$

3. Xander was determining the roots for the quadratic equation $x^2 + 4x - 1 = 7$. His work is shown.

   a. What did Xander do incorrectly when determining the roots?

$x^2 + 4x - 1 = 7$
$a = 1, b = 4, c = -1$

$x = \dfrac{-4 \pm \sqrt{4^2 - 4(1)(-1)}}{2(1)}$

$x = \dfrac{-4 \pm \sqrt{16 + 4}}{2}$

$x = \dfrac{-4 \pm \sqrt{20}}{2}$

$x = \dfrac{-4 \pm 4.47}{2} \approx \dfrac{0.47}{2} \approx 0.235$ or $\dfrac{-8.47}{2} \approx -4.235$

The roots are approximately 0.235 and -4.235.

   b. Determine the correct roots for the given quadratic equation.

4. Describe and correct the error made in solving the equation using square roots.
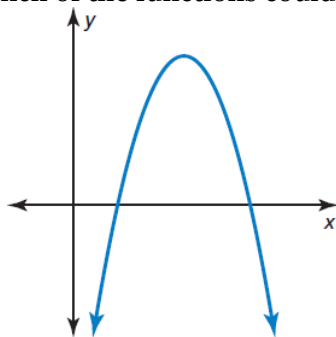
$$2x^2 - 33 = 39$$
$$2x^2 = 72$$
$$x^2 = 36$$
$$x = 6$$

▶ The solution is $x = 6$.

5. Describe and correct the error made in solving the equation by completing the square.

$$x^2 + 8x = 10$$
$$x^2 + 8x + 16 = 10$$
$$(x + 4)^2 = 10$$
$$x + 4 = \pm\sqrt{10}$$
$$x = -4 \pm \sqrt{10}$$

6. Which of the functions could be represented by the graph? Explain your reasoning.

$f(x) = -\frac{1}{2}(x + 4)^2 + 8$

$m(x) = (x - 3)(x - 12)$

$g(x) = -(x - 5)^2 + 9$

$p(x) = -(x - 2)(x - 8)$

Solve the quadratic equation using ANY algebraic method: factoring, square roots, completing the square, or the quadratic formula. If necessary, approximate your solutions to the nearest hundredth.

7. $-10x^2 + 13x = 4$

8. $x^2 - 4x + 1 = 0$