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Multiple Choice: No work required to be shown, but partial credit will be given for any correct work shown. 6 pts each.

<p>1. FOIL / Distribute</p> <p>$(-4x + 1)(x + 7) = 0$</p> <p>A) $-4x^2 - 27x + 8$ B) $-4x^2 - 27x + 7$ C) $-4x^2 - 29x + 8$ D) $-4x^2 - 29x + 7$</p>	<p>2. Factor out the GCF</p> <p>$24x^3 + 18x^2 - 6x$</p> <p>A) $3(8x^3 + 6x^2 - 2x)$ B) $3x(8x^2 + 6x - 2)$ C) $6(4x^3 + 3x^2 - 1x)$ D) $6x(4x^2 + 3x - 1)$</p>
<p>3. Factor</p> <p>$x^2 - 9x + 20$</p> <p>A) $(x + 5)(x - 4)$ B) $(x - 5)(x + 4)$ C) $(x + 5)(x + 4)$ D) $(x - 5)(x - 4)$</p>	<p>4. What is the vertex and axis of symmetry?</p> <p>$x^2 + 10x - 5$</p> <p>A) Vertex: $(-5, -30)$; Axis of Symmetry: $x = -5$ B) Vertex: $(10, 195)$; Axis of Symmetry: $x = 10$ C) Vertex: $(5, 70)$; Axis of Symmetry: $x = 5$ D) Vertex: $(-10, -5)$; Axis of Symmetry: $x = -10$</p>
<p>5. Factor Completely</p> <p>$2x^2 + 18x + 28$</p> <p>A) $2(x + 14)(x + 1)$ B) $(x + 14)(x + 4)$ C) $(x + 7)(x + 2)$ D) $2(x + 7)(x + 2)$</p>	<p>6. Use borrow and payback.</p> <p>$6x^2 + 7x + 2$</p> <p>A) $(6x + 2)(x + 1)$ B) $(x + 2)(6x + 1)$ C) $(3x + 1)(2x + 2)$ D) $(3x + 2)(2x + 1)$</p>
<p>7. Translate: The product of two consecutive odd integers is 63.</p> <p>A) $(x)(x + 2) = 63$ B) $(x + 1)(x + 3) = 63$ C) $(x)(x + 1) = 63$ D) $(x) + (x + 3) = 63$</p>	<p>8. Find the roots of the quadratic equation.</p> <p>$x^2 - 7x - 8 = 0$</p> <p>A) $x = -1$ and $x = -8$ B) $x = -1$ and $x = 8$ C) $x = 1$ and $x = -8$ D) $x = 1$ and $x = 8$</p>
<p>9. Find the roots of the quadratic equation.</p> <p>$x^2 = 60$</p> <p>A) $x = 2$ and $x = 30$ B) $x = \pm 30$ C) $x = \pm \sqrt{60}$ D) $x = \pm 2\sqrt{15}$</p>	<p>10. Find the roots of the quadratic equation.</p> <p>$x^2 - 10x = 0$</p> <p>A) $x = 0$ B) $x = \pm 10$ C) $x = 0$ and $x = 10$ D) $x = 0$ and $x = -10$</p>

Written Response: All work must be show for full credit. Algebraic solutions are necessary. 8 pts each.

11. Solve Using the Zero Product Property.

$$x^2 - 14x + 48 = 0$$

12. Find the axis of symmetry and vertex of the parabola algebraically.

$$x^2 + 8x - 20 = 0$$

13. Solve the Quadratic Linear System Algebraically

$$y = x^2 - 4x + 9$$

$$y = 2x + 1$$

14. Solve Using Borrow and Payback

$$3x^2 - 5x - 12$$

15. Olivia is 3 years older than Daria. The product of their ages is 180. Find Olivia's age. Only an Algebraic solution will be accepted.

Bonus: Use the Quadratic formula to find the roots of the equation ??????????. Leave answers in simplest radical form.