Name _____ Pd ____ # Correct _____ LAM 2 Converting Quadratics

Show ALL work NEATLY. CIRCLE your answer.

Convert to Standard Form

1. $y = 2(x-4)^2 - 3$

$$y + 3 = 2(x-4)^2$$

$$y + 3 = 2(x^2 - 8x + 16)$$

$$y + 3 = 2x^2 - 16x + 32$$

$$y = 2x^2 - 16x + 29$$

2. $y = (x-1)^2 - 3$

$$y + 3 = (x-1)^2$$

$$y + 3 = (x^2 - 2x + 1)$$

$$y = x^2 - 2x - 2$$

3. $y = 4(x-4)^2 - 4$

$$y + 4 = 4(x-4)^2$$

$$y + 4 = 4(x^2 - 8x + 16)$$

$$y + 4 = 4x^2 - 32x + 64$$

$$y = 4x^2 - 32x + 60$$

4. $y = 5(x+3)^2 - 2$

$$y + 2 = 5(x+3)^2$$

$$y + 2 = 5(x^2 + 6x + 9)$$

$$y + 2 = 5x^2 + 30x + 45$$

$$y = 5x^2 + 30x + 43$$

Convert to Vertex Form

5. $y = 2x^2 - 16x + 29$

$$\frac{y}{2} = x^2 - 8x + \frac{29}{2}$$

$$\frac{y}{2} - \frac{29}{2} = x^2 - 8x$$

$$\frac{y}{2} - \frac{29}{2} + (4)^2 = x^2 - 8x + (4)^2$$

$$\frac{y}{2} + \frac{3}{2} = (x-4)^2$$

$$\frac{y}{2} = (x-4)^2 - \frac{3}{2}$$

$$y = 2(x-4)^2 - 3$$

6. $y = x^2 - 2x - 2$

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

$$y + 2 + (1)^2 = x^2 - 2x + (1)^2$$

$$y + 3 = (x-1)^2$$

$$y = (x-1)^2 - 3$$

7. $y = 4x^2 - 32x + 60$

$$\frac{y}{4} = x^2 - 8x + 15$$

$$\frac{y}{4} - 15 = x^2 - 8x$$

$$\frac{y}{4} - 15 + (4)^2 = x^2 - 8x + (4)^2$$

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

$$\frac{y}{4} = (x-4)^2 - 1$$

$$y = 4(x-4)^2 - 4$$

8. $y = 5x^2 + 30x + 43$

$$\frac{y}{5} = x^2 + 6x + \frac{43}{5}$$

$$\frac{y}{5} - \frac{43}{5} = x^2 + 6x$$

$$\frac{y}{5} - \frac{43}{5} + (3)^2 = x^2 + 6x + (3)^2$$

$$\frac{y}{5} + \frac{2}{5} = (x+3)^2$$

$$\frac{y}{5} = (x+3)^2 - \frac{2}{5}$$

$$y = 5(x+3)^2 - 2$$