Vertex to standard form

Wednesday, January 6, 2021 7:06 PM

$$y = a(x-h)^2 + k \longrightarrow y = ax^2 + bx + c$$

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

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

$y = 2(x^2 + 3x + 3x + 9) + 1$

$y = 2(x^2 + 6x + 9) + 1$

$y = 2x^2 + 12x + 18 + 1$

$$y = 2x^2 + 12x + 19$$

2) $y = -\frac{1}{2}(x-4)^2 + 3$

$y = -\frac{1}{2}(x-4)(x-4) + 3$

$y = -\frac{1}{2}(x^2 - 4x - 4x + 16) + 3$

$y = -\frac{1}{2}(x^2 - 8x + 16) + 3$

$y = -\frac{1}{2}x^2 + 4x - 8 + 3$

$$y = -\frac{1}{2}x^2 + 4x - 5$$