

Converting between the Forms (1) Practice

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① $y = (x-7)(x-1)$

② $y = -4(x-3)^2$

③ $y = (x+3)^2 + 3$

④ $y = \frac{1}{2}(x+2)(x-2)$

⑤ $y = 5(x+5)(x-2)$

⑥ $y = 3(x+4)^2 - 2$

⑦ $y = -2(x+5)(x-1)$

⑧ $y = 2(x-1)^2 + 1$

① $y = (x-7)(x-1)$
 $= x^2 - 1x - 7x + 7$
 $y = x^2 - 8x + 7$

② $y = -4(x-3)^2$
 $= -4(x-3)(x-3)$
 $= -4(x^2 - 3x - 3x + 9)$
 $= -4x^2 + 12x + 12x - 36$
 $y = -4x^2 + 24x - 36$

③ $y = (x+3)^2 + 3$
 $= (x+3)(x+3) + 3$
 $= x^2 + 3x + 3x + 9 + 3$
 $y = x^2 + 6x + 12$

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

⑤ $y = 5(x+5)(x-2)$
 $= 5(x^2 - 2x + 5x - 10)$
 $= 5(x^2 + 3x - 10)$
 $y = 5x^2 + 15x - 50$

⑥ $y = 3(x+4)^2 - 2$
 $= 3(x+4)(x+4) - 2$
 $= 3(x^2 + 4x + 4x + 16) - 2$
 $= 3x^2 + 12x + 12x + 48 - 2$
 $y = 3x^2 + 24x + 46$

⑦ $y = -2(x+5)(x-1)$
 $= -2(x^2 - x + 5x - 5)$
 $= -2(x^2 + 4x - 5)$
 $y = -2x^2 - 8x + 10$

⑧ $y = 2(x-1)^2 + 1$
 $= 2(x-1)(x-1) + 1$
 $= 2(x^2 - 1x - 1x + 1) + 1$
 $= 2x^2 - 2x - 2x + 2 + 1$
 $y = 2x^2 - 4x + 3$