

**Write in intercept form**

1.  $y = x^2 - 3x + 2$

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

2.  $y = x^2 - 100$

$$y = (x+10)(x-10)$$

3.  $y = x^2 + 3x - 18$

$$y = (x+6)(x-3)$$

4.  $y = x^2 - 2x - 8$

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

5.  $y = x^2 - x - 132$

$$y = (x-12)(x+11)$$

6.  $y = 4x^2 + 4x + 1$

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

$$\text{OR}$$
$$y = (2x+1)^2$$

7.  $y = 4x^2 + 5x - 6$

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

8.  $y = 12x^2 + 17x + 6$

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

9.  $y = 25x^2 - 9$

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

10.  $y = 15x^2 + 8x - 16$

$$y = (5x-4)(3x+4)$$

**Write in Standard form**

11.  $y = (x-5)(x+2)$

$$y = x^2 - 3x - 10$$

12.  $y = -\frac{1}{4}(4x-5)(x+3)$

$$y = -\frac{1}{4}(4x^2 + 7x - 15)$$

$$y = -x^2 - \frac{7}{4}x + \frac{15}{4}$$

$$13. y = 3(2x-3)(x-1)$$

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

$$y = 6x^2 - 15x + 9$$

$$14. y = (3x-2)^2 + 5$$

$$y = 9x^2 - 12x + 4 + 5$$

$$y = 9x^2 - 12x + 9$$

$$15. y = (x-8)^2 + 13$$

$$y = x^2 - 16x + 64 + 13$$

$$y = x^2 - 16x + 77$$

$$16. y = 2(x+5)^2 - 23$$

$$y = 2(x^2 + 10x + 25) - 23$$

$$y = 2x^2 + 20x + 50 - 23$$

$$y = 2x^2 + 20x + 27$$

$$17. y = -2(x-11)^2 + 17$$

$$y = -2(x^2 - 22x + 121) + 17$$

$$y = -2x^2 + 44x - 242 + 17$$

$$y = -2x^2 + 44x - 225$$

$$18. y = \left(\frac{1}{3}x + 4\right)(2x - 5)$$

$$y = \frac{2}{3}x^2 + \frac{19}{3}x - 20$$

### Write in Vertex Form

$$21. y = x^2 - 8x + 2$$

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

$$y = (x-4)^2 - 14$$

$$24. y = 4x^2 - 4x + 15$$

$$y = 4\left(x^2 - x + \frac{1}{4}\right) + 15 - 1$$

$$y = 4\left(x - \frac{1}{2}\right)^2 + 14$$

$$22. y = x^2 + 12x + 2$$

$$y = (x^2 + 12x + 36) + 2 - 36$$

$$y = (x+6)^2 - 34$$

$$25. y = (x+3)(x-9)$$

$$y = x^2 - 6x - 27$$

$$y = (x^2 - 6x + 9) - 27 - 9$$

$$y = (x-3)^2 - 36$$

$$23. y = -2x^2 + 6x - 3$$

$$y = -2\left(x^2 - 3x\right) - 3$$

$$y = -2\left(x^2 - 3x + \frac{9}{4}\right) - 3 + \frac{9}{2}$$

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

$$26. y = 2(x+5)(x+7)$$

$$y = 2(x^2 + 12x + 35)$$

$$y = 2x^2 + 24x + 70$$

$$y = 2(x^2 + 12x + 36) + 70 - 72$$

$$y = 2(x+6)^2 - 2$$