

# 4.2 Worksheet

## Intermediate Algebra

Name Key

**Learning Target:** I can translate quadratic equations from factored and vertex form INTO standard form.

Level 1  
Multiply

1.  $3x(x-4)$   
 $3x(x) \quad 3x(-4)$   
 $3x^2 - 12x$

2.  $-2x^2(4x^3+3x-2)$   
 $-2x^2(4x^3) \quad -2x^2(3x) \quad -2x^2(-2)$   
 $-8x^5 - 6x^3 + 4x^2$

3.  $(2x+1)(x-3)$   
 $2x(x) \quad 2x(-3) \quad 1(x) \quad 1(-3)$   
 $2x^2 - 6x + x - 3$   
 $2x^2 - 5x - 3$

Write each equation in standard form.

5.  $y = (x+4)(x+1)$   
 $x(x) \quad x(1) \quad 4(x) \quad 4(1)$   
 $x^2 + x + 4x + 4$   
 $y = x^2 + 5x + 4$

6.  $y = -2(x-2)(x+6)$   
 $-2[x(x) \quad x(6) \quad -2(x) \quad -2(6)]$   
 $-2[x^2 + 6x - 2x - 12]$   
 $-2[x^2 + 4x - 12]$   
 $y = -2x^2 - 8x + 24$

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

8.  $y = (4x-7)^2$   
 $y = (4x-7)(4x-7)$   
 $y = 16x^2 - 56x + 49$

9.  $y = 4(x-2)^2 + 4$   
 $y = 4[(x-2)(x-2)] + 4$   
 $y = 4(x^2 - 4x + 4)$   
 $y = 4x^2 - 16x + 16 + 4$   
 $y = 4x^2 - 16x + 20$

10.  $y = -(x-6)^2 - 12$   
 $y = -1[(x-6)(x-6)] - 12$   
 $y = -1[x^2 - 12x + 36] - 12$   
 $y = -x^2 + 12x - 36 - 12$   
 $y = -x^2 + 12x - 48$

Level 2  
Find the x-intercepts of each function.

11.  $y = (2x+12)(x-3)$   
 $0 = (2x+12)(x-3)$   
 $2x+12=0 \quad x-3=0$   
 $\frac{2x}{2} = \frac{-12}{2} \quad +3+3$   
 $x = -6 \quad x = 3$   
 $(-6, 0) \quad (3, 0)$   
 $y = 2x^2 - 6x + 12x - 36$   
 $y = 2x^2 + 6x - 36$

12.  $y = (4x+16)(3x-1)$   
 $0 = (4x+16)(3x-1)$   
 $4x+16=0 \quad 3x-1=0$   
 $\frac{4x}{4} = \frac{-16}{4} \quad \frac{3x}{3} = \frac{1}{3}$   
 $x = -4 \quad x = \frac{1}{3}$

Given the following x-intercepts, write a quadratic function in standard form.

13.  $(4, 0) (-6, 0)$   
 $x = 4 \quad x = -6$   
 $x-4=0 \quad x+6=0$   
 $y = (x-4)(x+6)$   
 $y = x^2 + 2x - 24$

14.  $(-2, 0) (-10, 0)$   
 $x = -2 \quad x = -10$   
 $x+2=0 \quad x+10=0$   
 $y = (x+2)(x+10)$   
 $y = x^2 + 12x + 20$