

1.1 Factor the following completely:

1. $2x^2 - 5x$
 $2x^2 - 5x = x(2x - 5)$

2. $x^2 + 2x - 15$
 $(x+5)(x-3)$
 $x^2 + 5x - 3x - 15$
 $x(x+5) - 3(x+5)$
 $(x-3)(x+5)$

3. $3x^2 - 27$
 $3(x^2 - 9)$
 $3(x+3)(x-3)$

1.2 Factor the following quadratics by grouping:

1. $2x^2 + 7x - 15$
 $2x^2 + 10x - 3x - 15$
 $2x(x+5) - 3(x+5)$
 $(2x-3)(x+5)$

1. $x^2 + 2x - 15$
 $x^2 + 5x - 3x - 15$
 $x(x+5) - 3(x+5)$
 $(x-3)(x+5)$

2. $x^2 + 11x + 24$
 $x^2 + 8x + 3x + 24$
 $x(x+8) + 3(x+8)$
 $(x+3)(x+8)$

2. $x^2 + 11x + 24$
 $x^2 + 3x + 8x + 24$
 $x(x+3) + 8(x+3)$
 $(x+8)(x+3)$

1.3 Identify the factors of each equation and write the corresponding:

1. $x^2 - 16 = 0$ $(x+4)(x-4) = 0$
 x-intercepts: $x = -4, 4$
 y-intercept: $y = -16$
2. $x^2 + 11x + 24 = 0$ $(x+3)(x+8) = 0$
 x-intercepts: $x = -3, -8$
 y-intercept: $y = 24$
3. $x^2 - 25 = 0$ $(x+5)(x-5) = 0$
 x-intercepts: $x = -5, 5$
 y-intercept: $y = -25$

1. $x^2 - 16 = 0$ $(x+4)(x-4) = 0$
 x-intercepts: $x = -4, 4$
 y-intercept: $y = -16$
2. $x^2 + 11x + 24 = 0$ $(x+3)(x+8) = 0$
 x-intercepts: $x = -3, -8$
 y-intercept: $y = 24$
3. $x^2 - 25 = 0$ $(x+5)(x-5) = 0$
 x-intercepts: $x = -5, 5$
 y-intercept: $y = -25$