

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

1.2 Factor the following quadratics by grouping:

1. $2x^2 + 7x - 4$
 $2x^2 + 8x - x - 4$
 $2x(x+4) - 1(x+4)$
 $(2x-1)(x+4)$

1. $x^2 + 5x - 14$
 $x^2 + 7x - 2x - 14$
 $x(x+7) - 2(x+7)$
 $(x-2)(x+7)$

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

2. $x^2 + 13x + 40$
 $x^2 + 8x + 5x + 40$
 $x(x+8) + 5(x+8)$
 $(x+5)(x+8)$

1.3 Identify the factors of each equation and state the solutions:

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

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