

1.1 Factor the following completely:

1. $2x^2 + 5x$

$2x^2 + 5x = x(2x + 5)$

2. $x^2 + 2x + 1$

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

3. $4x^2 - 9$

$(4x^2 - 9) = (2x + 3)(2x - 3)$

1.2 Factor the following quadratics by grouping:

1. $2x^2 + 7x + 3$

$2x^2 + 7x + 3 = 2x^2 + 6x + x + 3$
 $= 2x(x + 3) + 1(x + 3)$
 $= (2x + 1)(x + 3)$

2. $x^2 + 5x + 6$

$x^2 + 5x + 6 = x^2 + 3x + 2x + 6$
 $= x(x + 3) + 2(x + 3)$
 $= (x + 3)(x + 2)$

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

1. $x^2 - 16 = 0$

$(x + 4)(x - 4) = 0$
 Factors: $x + 4$, $x - 4$

2. $x^2 - 10x + 25 = 0$

$(x - 5)(x - 5) = 0$
 Factors: $x - 5$, $x - 5$

1. $x^2 + 2x - 15 = 0$

$x^2 + 2x - 15 = 0$
 $(x + 5)(x - 3) = 0$
 Factors: $x + 5$, $x - 3$

2. $x^2 + 7x + 12 = 0$

$x^2 + 7x + 12 = 0$
 $(x + 4)(x + 3) = 0$
 Factors: $x + 4$, $x + 3$

3. $x^2 - 9 = 0$

$(x + 3)(x - 3) = 0$
 Factors: $x + 3$, $x - 3$

4. $x^2 - 11x + 30 = 0$

$(x - 5)(x - 6) = 0$
 Factors: $x - 5$, $x - 6$