

Factor completely

$$x^2 - 5x - 14$$

2 · 7
1 · 14

$$(x + 2)(x - 7)$$

Factor completely.

$$2x^2 + 3x - 9$$

1 · 2 3 · 3
 + 9

$$(2x - 3)(x + 3)$$

Check:

$$2x^2 + 6x - 3x - 9$$
$$2x^2 + 3x - 9 \checkmark$$

Factor completely.

$$2x^2 + 3x - 20$$

2 · 1 ~~1 · 20~~
 ~~2 · 10~~
 4 · 5

$$(2x - 5)(x + 4)$$
$$+ 8x - 5x$$

When you have a lead coefficient (a coefficient on x^2), you must think of factors for both the first term & the last term to make your parentheses. Ignore the middle term at first.

Factor completely.

$$3x^2 - 10x + 7$$

$$(3x - 7)(x - 1)$$



$$3x \quad 7x$$

Check:

$$3x^2 - 3x - 7x + 7$$

$$3x^2 - 10x + 7 \quad \checkmark$$

Factor completely.

$$6x^2 + 17x + 5$$

$$(2x + 5)(3x + 1)$$



$$2x \quad 15x$$

Factor completely.

$$\begin{array}{c} +1 \\ 2 \cdot 2 \end{array} \quad \begin{array}{c} 1 \cdot 15 \\ 3 \cdot 5 \end{array} \\ 4x^2 + 16x + 15 \\ (2x + 3)(2x + 5)$$

Remember to still start every factoring problem by looking for a GCF.

Factor completely.

$$\begin{array}{c} 6x^2 + 3x - 3 \\ (2x - 1)(3x + 3) \\ 3(2x - 1)(x + 1) \end{array} \quad \xrightarrow{\text{same}} \quad \begin{array}{c} 3(2x^2 + x - 1) \\ 3(2x - 1)(x + 1) \end{array}$$

Factor completely.

$$\begin{array}{c} 2 \cdot 1 \\ 2x^2 + 6x - 8 \\ (2x + 8)(x - 1) \\ 2(x + 4)(x - 1) \end{array} \quad \begin{array}{c} \text{or} \\ 9 \cdot 1 \\ 4 \cdot 2 \end{array} \quad \xrightarrow{\text{same}} \quad \begin{array}{c} 2(x^2 + 3x - 4) \\ 2(x + 4)(x - 1) \end{array}$$

Factor completely.

$$\begin{array}{c} 1 \cdot 2 \\ 2x^2 + 25x + 12 \\ (2x + 1)(x + 12) \end{array} \quad \begin{array}{c} 1 \cdot 12 \\ 2 \cdot 6 \\ 3 \cdot 4 \end{array}$$

Remember that you should ignore the middle term when picking the numbers for your parentheses.

Factor completely.

5.1

~~32~~ -1
~~16~~ -2
8 -4

$$5x^2 - 36x - 32$$

$$(5x + 4)(x - 8)$$

$$4x^2 - 9$$

$$(2x - 3)(2x + 3)$$

Hwk: p463

(3-13, 17-21, 28)