

Warm Up
Simplify, then classify your answer.

$$(3x+2)(5x-9)$$

$$15x^2 - 27x + 10x - 18$$

$$15x^2 - 17x - 18$$

Goals for today

- Know when to factor
- Know and be able to explain how to factor a quadratic

Factor the following

$$x^2 + 5x + 4$$

$$x^2 + 1x + 1x + 4$$

$$x(x+1) + 4(x+1)$$

$$(x+1)(x+4)$$

$$\begin{array}{c} a \cdot c \\ 4 \\ \hline 1 \quad 4 \\ \hline 5 \\ b \end{array}$$

Factor This

$$2x^2 + 3x - 5$$

Bust the b
Group the terms

$$2x^2 - 2x + 5x - 5$$

Factor out GCF

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

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

Factor out common binomial

$$\begin{array}{c} a \cdot c \text{ mult} \\ -10 \\ \hline -2 \quad 5 \\ \hline 3 \\ b \text{ odd} \end{array}$$

Shortcut

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

$$(x-1)(2x+5) \leftarrow a \text{ value}$$

Show what you learned

$$2x^2 + 11x + 15$$

$$\boxed{2x^2 + 6x} + \boxed{5x + 15}$$

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

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

$$m: 30 = \underline{6} \cdot \underline{5}$$

$$a: 11 = \underline{6} + \underline{5}$$

$$\left(x + \frac{6}{2}\right) \left(x + \frac{5}{2}\right)$$

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

Find the mistake(s)

1. $x^2 - 9x + 20$

Substituted
Values
Should
be
5x and
-4x.

$$\boxed{x^2 + 5x} + \boxed{4x + 20}$$

Common factor x Common factor of 4

$$\cancel{x}(x+5) + 4(x+5)$$

$$(x+5)(x+4)$$

2. $x^2 + 9x - 10$

$$\boxed{x^2 + 10x} - \boxed{1x - 10}$$

Common factor x Common factor 1

$$\cancel{x}(x+10) + 1(x+10)$$

$$(x+10)(x+1)$$

The GCF
for the green
group should
be -1 instead of
positive 1.

