

Factor using the method we learned on last week.

- Multiply A and C
- Find the factors of that number which add to get B
- Split B into those factors and then Factor by Grouping

$$\begin{array}{l}
 3x^2 - 11x + 10 \\
 \downarrow \quad \downarrow \quad \downarrow \\
 3x^2 - 6x - 5x + 10 \\
 3x(x-2) - 5(x-2) \\
 (x-2)(3x-5)
 \end{array}$$

$\frac{30}{10 \cdot 3}$
 $15 \cdot 2$
 $5 \cdot 6$

$$\begin{array}{l}
 9m^2 + 3m - 2 \\
 \downarrow \quad \downarrow \quad \downarrow \\
 9m^2 + 6m - 3m - 2 \\
 3m(3m+2) - 1(3m+2) \\
 (3m+2)(3m-1)
 \end{array}$$

$\frac{18}{9 \cdot 2}$
 $6 \cdot 3$

check by Distributing
 $3x^2 - 6x - 5x + 10$
 $3x^2 - 11x + 10$ ✓

$Ax^2 + Bx + C$

When "a" cannot be factored out by GCF, we can possibly still factor the trinomial. The steps below show a method called "Slip and Slide" to factor the trinomials.

- 1 "Slip" A to the end of the trinomial and multiply by C.
- 2 Factor this new basic trinomial.
- 3 Divide both your factors by the value you "slipped" over in Step 1.
- 4 Reduce fractions and "slide" any denominators up next to the variable. Distribute to check.

Slip 2 & multiply it by 3
 Factor
 Divide factors by A (2)
 Slide Denom. next to variable

| Example 1: | $2x^2 + 5x + 3$ | Example 2: | $5m^2 - 17m + 6$ |
|------------|--------------------------------------|------------|--|
| ① | $x^2 + 5x + 6$ | ① | $m^2 - 17m + 30$ |
| ② | $(x + 3)(x + 2)$ | ② | $(m - 15)(m - 2)$ |
| ③ | $(x + \frac{3}{2})(x + \frac{2}{1})$ | ③ | $(m - \frac{15}{5})(m - \frac{2}{1})$ |
| ④ | $(2x + 3)(x + 1)$ | ④ | $(m - 3)(5m - 2)$ |
| Example 3: | $6y^2 - 5y - 4$ | Example 4: | $12c^2 + 11c - 5$ |
| ① | $y^2 - 5y - 24$ | ① | $c^2 + 11c - 60$ |
| ② | $(y + 3)(y - 8)$ | ② | $(c + 15)(c - 4)$ |
| ③ | $(y + \frac{3}{6})(y - \frac{8}{3})$ | ③ | $(c + \frac{15}{12})(c - \frac{4}{3})$ |
| ④ | $(2y + 1)(3y - 4)$ | ④ | $(4c + 5)(3c - 1)$ |