

Learning Goal

 Factor quadratic expressions of the form ax² + bx + c, where a ≠ 1.



Minds on ...

Remember expanding?

(2x - 3)(4x + 5)

- $= 8x^2 + 10x 12x 15$
- $= 8x^2 2x 15$

Look for patterns!



Try something more algebraic...

- Decomposition
 - Factor 3x² + 11x + 6

 $= (\gamma + 3)(3\gamma + 2)$

 $3\chi^2 + 2\chi + 9\chi + 6$ Factor out x Factor out $\Im(3\chi+2) + \Im(3\chi+2)$ (A

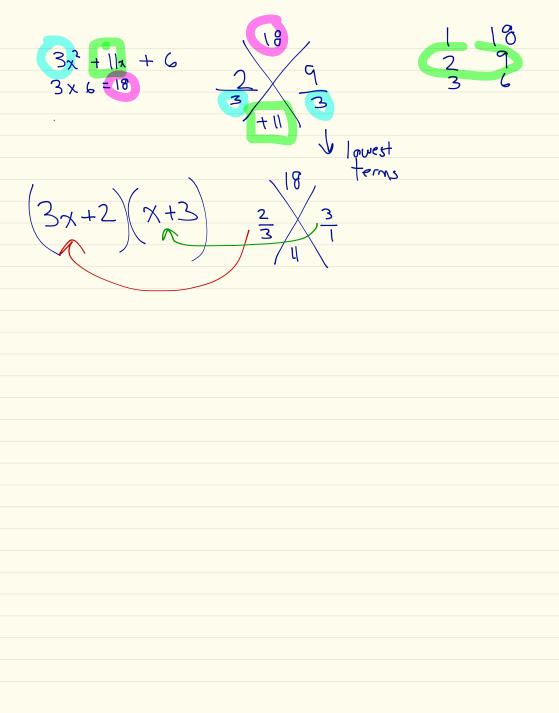
STEPS:

- Find the product of a and c.
 Use the product of a and c and the sum b to find the magic numbers.
 Rewrite the x-term as
 - the sum of the magic numbers.
- 4. Factor by parts.
- 5. Common factor.

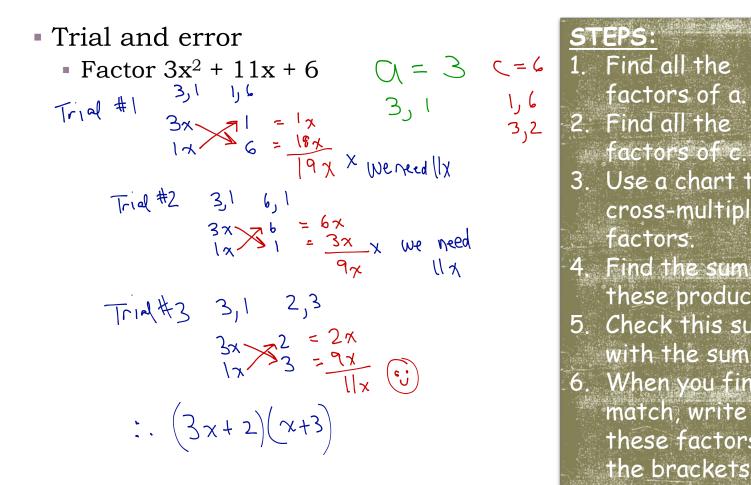
$$9x2 = 18$$

 $9+2 = 11$





What about guessing?



STEPS: 3. Use a chart to cross-multiply the factors. 4. Find the sum of these products. 5. Check this sum with the sum b. 6. When you find a

match, write these factors in the brackets.



Big Ideas

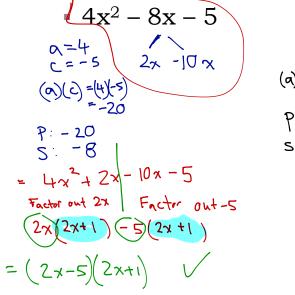
• You can use the following strategies to factor:

- Decomposition
- Trial and error
- · Magic X



Examples

• Factor the following using a method of your choice.



$$\frac{19}{6x^{2} + 7x - 3}$$

$$\frac{6}{3x^{2} + 7x - 3}$$

$$\frac{6}{3x^{2} + 7x - 3}$$

$$\frac{7}{9x^{2} - 2x}$$

$$\frac{7}{9x^{2} - 2x}$$

$$\frac{7}{9x^{2} - 2x - 3}$$



Consolidation

- Think, pair, and share
 - Take a minute to talk to your elbow partner about which method you think you will use to factor these more difficult trinomials and why that is your choice.



Reinforcement

- Read page 221 (examples 3 and 4) and page 222 Key Ideas and Need to Know
- Pages 223 224
- **#**3 7, 9, 15

