

Factoring ac Method

$$ax^2 + bx + c; a \neq 1$$

Strategy

1. Find the product of ac
2. Find factors of ac whose sum is b
3. Rewrite trinomial as a polynomial with four terms using those factors
4. Group the first two terms and the last two terms and factor using D-Prop
5. Factor again using the D-Prop

Example Factor $6x^2 + 17x + 12$

1. Mult ac ; $6(12) = 72$.
2. Factors of 72, sum = 17

$$6x^2 + 17x + 12$$

3. $6x^2 + 9x + 8x + 12$

4. $\underline{6x^2 + 9x} + 8x + 12$

5. $3x(2x + 3) + 4(2x + 3)$
 $(2x + 3)(3x + 4)$

$$\underline{72}$$

$$72 \quad 1$$

$$36 \quad 2$$

$$18 \quad 4$$

$$9 \quad 8$$

$$3 \quad 24$$

$$6 \quad 12$$

Factor

1. $6x^2 + 9x + 3$

6. $8x^2 + 14x + 5$

2. $6x^2 + 19x + 10$

7. $12x^2 + 20x + 3$

3. $12x^2 + 28x - 5$

8. $6x^2 - 5x - 21$

4. $5x^2 + 58x - 24$

9. $5x^2 - 2x - 24$

5. $4x^2 + 23x + 15$

10. $4x^2 - 7x - 15$