

FACTORIZING TRINOMIALS

$$(ax^2 + bx + c, a \neq 1)$$

1) Do the “Illegal Move”

Remove the number in front of x^2 [the leading coefficient] by multiplying it with the last number [c].

2) Factor

3) Undo the “Illegal Move”

Since we multiplied by the leading coefficient, we divide the constants by that same number.

4) Reduce the Fractions

5) “Squeeze Out” the Denominators

Make the denominators of the fractions the coefficients of x .

Examples

Factor : $6x^2 - 7x - 3$

1. “Illegal Move”

$$\textcircled{6}x^2 - 7x - 3$$

2. Factor $x^2 - 7x - 18$

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

3. Undo the “Illegal Move” $(x - \frac{9}{6})(x + \frac{2}{6})$

4. Reduce Fractions $(x - \frac{3}{2})(x + \frac{1}{3})$

5. “Squeeze Out” the Denominators $(x - \frac{3}{2})(x + \frac{1}{3})$

$$\boxed{(2x - 3)(3x + 1)}$$

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

1. “Illegal Move”

$$\textcircled{3}x^2 + 5x - 2$$

2. Factor $x^2 + 5x - 6$

$$(x + 6)(x - 1)$$

3. Undo the “Illegal Move” $(x + \frac{6}{3})(x - \frac{1}{3})$

4. Reduce Fractions $(x + 2)(x - \frac{1}{3})$

5. “Squeeze Out” the Denominators $(x + 2)(x - \frac{1}{3})$

$$\boxed{(x + 2)(3x - 1)}$$