

Bell Ringer - Solve the equations.

1. $(3x + 4)(7x - 21) = 0$

2. $(2w - 1)(5n + 25) = 0$

Bell Ringer - Solve the equations.

$$1. (3x + 4)(7x - 21) = 0$$

$$3x + 4 = 0 \quad 7x - 21 = 0$$

$$3x = -4 \quad 7x = 21$$

$$x = -\frac{4}{3} \quad x = 3$$

$$2. (2w - 1)(5n + 25) = 0$$

$$2w - 1 = 0 \quad 5n + 25 = 0$$

$$2w = 1 \quad 5n = -25$$

$$w = \frac{1}{2} \quad n = -5$$

Factoring $ax^2 + bx + c$ when $a = 1$

Factoring quadratics will only work if the discriminant is a perfect square.

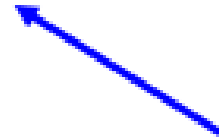
FOIL changes factored form into standard form.

$$(x + n)(x + m) = x^2 + (mx + nx) + mn$$

$$x^2 + x(m + n) + mn$$



This is the "b" term.



This is the "c" term.

Factoring $ax^2 + bx + c$ when $a = 1$

Steps to Factoring Quadratics when $a=1$

- 1) Make sure the equation is in standard form $ax^2 + bx + c = 0$
- 2) Find the factors of the "c" term
- 3) Choose the factor pair that sums to the "b" term.
- 4) Using the factor pair, write the product of the two quantities.
- 5) Remember to set the quantities equal to zero.
- 6) Find the solutions for x.

Remember:

Factors are numbers you can multiply together to get another number.

Example: 2 and 3 are factors of 6 because $2 \times 3 = 6$

Solve the equation by factoring.

1) $x^2 - 9x + 20 = 0$

Solve the equation by factoring.

$$1) x^2 - 9x + 20 = 0$$

$$(x-4)(x-5) = 0$$

$$x = 4 \text{ and } 5$$

Factors of 20

1, 20 -1, -20

2, 10 -2, -10

4, 5 -4, -5

Which factor pair
sum to -9?

Solve the equation by factoring.

$$2) x^2 - 8x - 9 = 0$$

Solve the equation by factoring.

$$2) x^2 - 8x - 9 = 0$$

$$(x + 1)(x - 9) = 0$$

$$x = -1 \text{ and } 9$$

Factors of -9

$$1, -9$$

$$-1, 9$$

$$-3, 3$$

Which factor pair
sums to -8?

Solve the equation by factoring.

$$3) x^2 + 8x + 15 = 0$$

Solve the equation by factoring.

$$3) x^2 + 8x + 15 = 0$$

$$(x + 3)(x + 5) = 0$$

$$x = -3 \text{ and } -5$$

Factors of 15

15, 1 -15, -1

3, 5 -3, -5

Which factor pair
sums to 8?

Solve the equation by factoring.

$$4) x^2 - 2x - 48 = 0$$

Solve the equation by factoring.

$$4) x^2 - 2x - 48 = 0$$

$$(x + 6)(x - 8) = 0$$

$$x = -6 \text{ and } 8$$

Factor of -48

$$-1, 48 \quad -3, 16$$

$$1, -48 \quad 3, -16$$

$$-2, 24 \quad -4, 12$$

$$2, -24 \quad 4, -12$$

$$-6, 8$$

$$6, -8$$

Which factor pair
sums to -2?