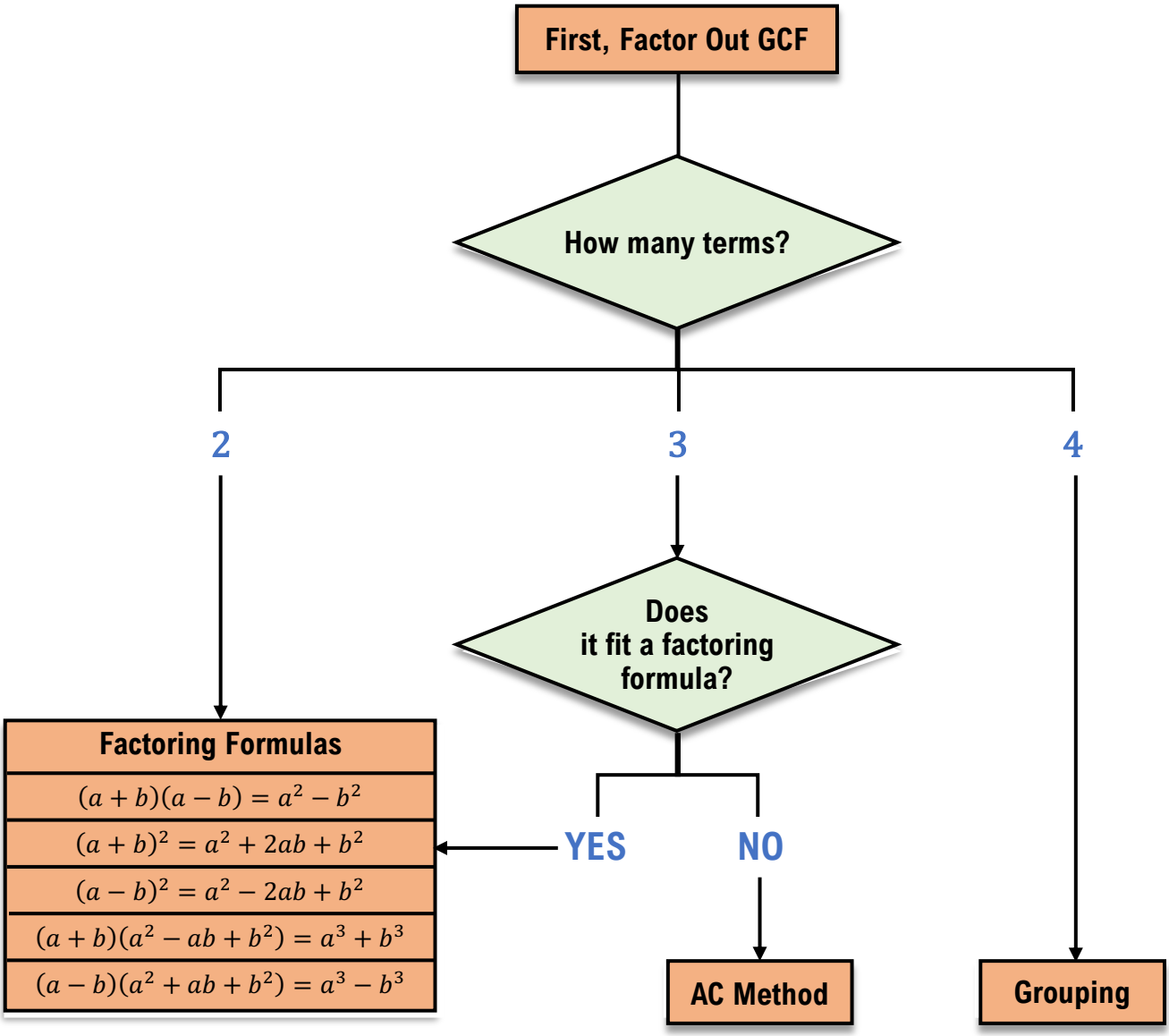
TOPIC: INTRO TO QUADRATIC EQUATIONS

Topic Resource: Choosing a Factoring Method



Repeat this process with each non – prime factor.

TOPIC: INTRO TO QUADRATIC EQUATIONS

- If you take a **linear equation** and add an ____ term, you get a **quadratic equation!**
  - Also called a polynomial of *degree 2.*

$$\_\_\_\_\_\ 2x - 6 = 0$$

- You will often need to write quadratic equations in *standard form.*

$$ax^2 + bx + c = 0$$

  - All terms are on the **same** side in *descending* order of _____.

EXAMPLE: Write each given quadratic equation in standard form. Identify $a, b,$ and c.

$(\boldsymbol{A})$ $5x^2 = x - 3$

$a =$ _____

$b =$ _____

$c =$ _____

$(\boldsymbol{B})$ $-2x^2 + \frac{5}{3} = 0$

$a =$ _____

$b =$ _____

$c =$ _____

PRACTICE**:** Write the given quadratic equation in standard form. Identify $a, b,$ and c.

$-4x^2 + x = 8$

$a =$ _____

$b =$ _____

$c =$ _____

TOPIC: INTRO TO QUADRATIC EQUATIONS

Factoring

- To **solve** a quadratic equation, we want to find every value of _____ that makes the equation _____.
  - There are often ____ correct values of x, which we call the ***solutions, roots,*** or ***zeros***.

Solving Linear Equations

$$2x - 6 = 0$$
$$2x = 6$$
$$x = 3$$

Solving Quadratic Equations

$$x^2 - 5x + 4 = 0$$

- We will need to use something else to solve quadratic equations:

- One way to solve a quadratic equation is to **factor** from standard form, then set each factor equal to ___.

$$x^2 + x - 6 = 0$$
$$\underbrace{(x+3)}_{0}\underbrace{(x-2)}_{0} = 0$$

  - If the factors **multiplied** $= 0$, one of the **factors** must $= 0$ to make this true.

EXAMPLE: Solve the given quadratic equation by factoring.

$$x^2 - 9x = -20$$

Multiply to	Add to
$a \cdot c$	b

FACTORING QUAD. EQNS

1) Write eqn in _____ form

2) _____ completely

3) Set factors = __, solve for x

4) Check solutions in original eqn

TOPIC: INTRO TO QUADRATIC EQUATIONS

PRACTICE: Solve the given quadratic equation by factoring.

$$3x^2 + 12x = 0$$

FACTORING QUAD. EQNS
1) Write eqn in standard form
2) Factor completely
3) Set factors = 0, solve for x
4) Check solutions

PRACTICE: Solve the given quadratic equation by factoring.

$$2x^2 + 7x + 6 = 0$$