

WarmUp

1. What two numbers multiply together to equal 15 and add together to equal 8?

3 X 5 = 15 3 + 5 = 8

2. What two numbers multiply together to equal 15 and add together to equal (-16)?

-1 X -15 = 15 -1 + (-15) = -16

3. What two numbers multiply together to equal (-15) and add together to equal (-2)?

3 X -5 = 15 3 + (-5) = -2

4. What two numbers multiply together to equal (-15) and add together to equal (-14)?

1 X -15 = 15 1 + (-15) = (-14)

15
1, 15
-1, -15
3, 5
-3, -5

-15
-1, 15
15, -1
3, -5
-3, 5

Multiplying ^{1st degree} linear Binomial ^{2 term}

$(x+2)(x+3) =$

$x^2 + 3x + 2x + 6 = x^2 + 5x + 6$

Sum of (3+2)

Product of (3x2)

Standard form of Quadratic:

^{2nd degree}

$ax^2 + bx + c$

c = constant
b = coefficient of x
a = leading coefficient

To factor quadratic: When a=1,

$x^2 + bx + c$

find two numbers that ^{Factor of} multiply to "c" and add to "b"

 X = c + = b

Factor each expression:

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

2
1 2

$(x+1)(x+2)$

Check:

DISTRIBUTE/FOIL

$x^2 + 2x + x + 2$
 $x^2 + 3x + 2$

Try
2. $x^2 + 6x + 8$

8
4 2

$(x+4)(x+2)$

Check:

$x^2 + 2x + 4x + 8$
 $x^2 + 6x + 8$

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

$$(x-3)(x-2)$$

| |
|-------|
| 6 |
| 1 6 |
| 3 2 |
| -3 -2 |

Check:

$$x^2 - 2x - 3x + 6$$

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

5. $x^2 - 2x + 8$

Non Factorable

PRIME

Try

4. $x^2 + 3x - 10$

$$(x-2)(x+5)$$

| |
|-------|
| -10 |
| 1 -10 |
| -1 10 |
| 2 -5 |
| -2 5 |

6. $x^2 - 5x - 14$

$$(x-7)(x+2)$$

| |
|-------|
| -14 |
| -1 14 |
| 1 -14 |
| 7 -2 |
| -7 2 |

Try It.....

$$x^2 + 5x + 6$$

$$(x+3)(x+2)$$

$$x^2 - 11x + 18$$

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