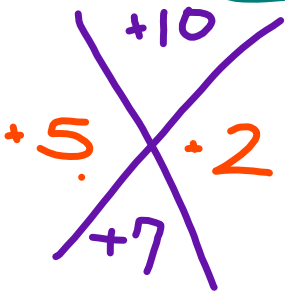


Factor: $x^2 + 7x + 10$

Factored form

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



Check $(x + 5)(x + 2)$

$x^2 + 2x + 5x + 10$

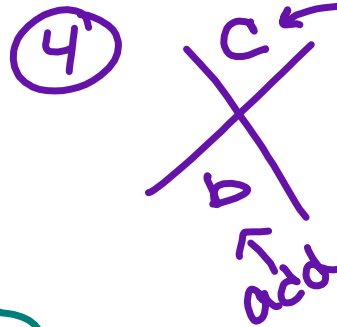
$x^2 + 7x + 10$

1 GCF



2 2 sets parentheses

3 factors of c multiply



5 Check by foiling

Factor:

$$x^2 - 7x + 10$$

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

A purple 'X' mark is drawn over the numbers +10, -7, -5, and -2. The +10 is at the top, -7 is at the bottom, -5 is on the left, and -2 is on the right.



Factor: $8 - 2x - x^2$

$$-x^2 - 2x + 8$$

$$-1(\underline{x}^2 + 2x - 8)$$

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

$$\begin{array}{r} -8 \\ 4 \quad -2 \\ \hline 2 \end{array}$$



Factoring Polynomials When...

- | |
|----------------------------------|
| The degree is 2 (Quadratic) |
| The # of terms is 3 (Trinomial) |
| The leading coefficient is 1 (a) |

$$ax^2 + bx + c$$

(x)(x)

\swarrow
 $c \leftarrow \text{multiply}$

\searrow
 $b \leftarrow \text{Add}$

- | |
|--|
| GCF! Steps for factoring success |
| 1. Draw Parentheses & fill in X |
| 2. What # multiply to get c and add or subtract to get b |
| 3. What are your signs? |

Example:

Factor $r^2 + 4r + 3$

$(r + 1)(r + 3)$ $+1 \times +3$

factored form

\swarrow
 3

\searrow
 4

check:

$$(r+1)(r+3)$$

$$r^2 + 3r + r + 3$$

$$r^2 + 4r + 3 \checkmark$$