Definition 1) An equation is a statement that two expressions are equal.

2) A solution to an equation is a value (or set of values) for the variables in it that make the equation true

ANY ORDER, ANY GROUPING { Commutative Law for Addition + Mult
Associative Law " "

Additive identity and multiplicative identity except 0
" inverses " " inverses

DISTRIBUTIVE LAW

$a(b+c) = ab + ac$

Rules about inequality

negative × negative = positive

cancellation in equations

reducing

order of operations

Responses

- Ask student to plug in values and check their work.
- Why not use a different factorization at * (e.g. 4×1 or 1×4)
- Why you did you move the 4 in the first place?
- What does the "or" mean?

$(x-4)(x+1)$

$x^2 - 3x - 4 = 0$ *

$x^2 - 3x = 4$

$x(x-3) = 4 = 2 \cdot 2$ *

$x = 2$ or $x - 3 = 2$

$x = 2, 5$

If x is a number satisfying

$x^2 - 3x - 4 = 0$

then $(x-4)(x+1) = 0$.

Because for all x $(x-4)(x+1) = x^2 - 3x - 4$ DL + friends

Therefore

$\Downarrow$

$x - 4 = 0$ or $x + 1 = 0$

so

$x = 4$ or $x = -1$.

$(x-4)(x+1) = (x-4)x + (x-4)\cdot 1$

$= x(x-4) + 1\cdot(x-4)$

$\vdots$

4

If $\underbrace{(x-4)}_{A}\underbrace{(x+1)}_{B} = 0$ then $x-4=0$ or $x+1=0$

If $A\cdot B = 0$ then $A=0$ or $B=0$

If $A=0$ or $B=0$ then $A\cdot B=0$.

$A\cdot B = 0$ only if $A=0$ or $B=0$

$P \Rightarrow Q$

$Q \Rightarrow P$