

Review of algebra:

17 Aug 2020
TRIG

Laws of algebra:

Commutative Law — $a+b=b+a$, $a \cdot b=b \cdot a$

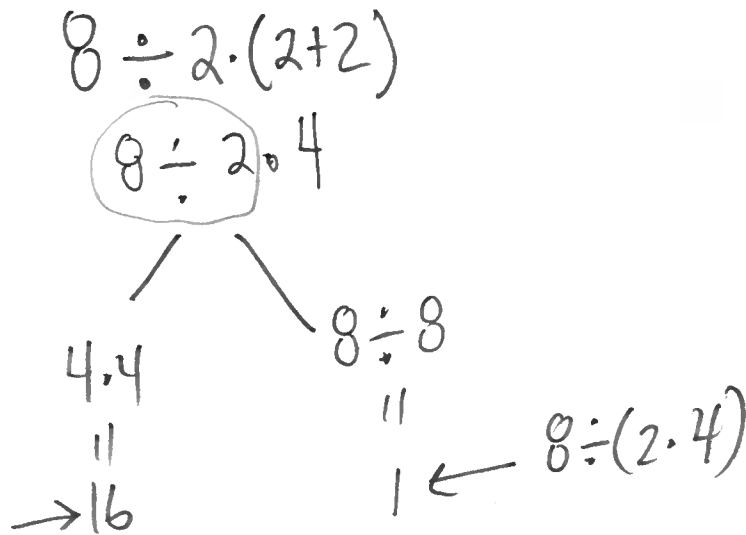
Associative Law — $a+(b+c)=(a+b)+c$, $a \cdot (b \cdot c)=(a \cdot b) \cdot c$

Distributive Law — $a \cdot (b+c) = a \cdot b + a \cdot c$

← "factoring"

Order of operations:

- left-to-right [Parentheses
 - Exponents
 - left-to-right [Mult
 - Divide
 - left-to-right [Add
 - Subtract
- $(8 \div 2) \cdot 4$



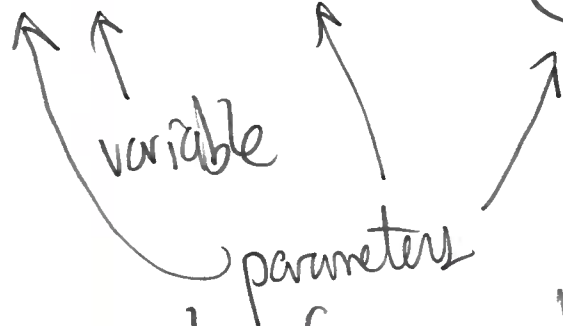
Solving equations

(2)

General rule: "do some thing to both sides"

Linear eqt in 1 variable

$$ax + b = c$$



"To solve" means to find all values of the variable that make the eqt. "true".

Ex: $8x + 6 = -12$

if $x=3$

3

↑
target

$$8 \cdot 3 + 6 = -12$$

$$30 = -12 \text{ false!}$$

Subtr 6 from both sides:

→ $x=3$ is not a soln

$$8x + 6 - 6 = -12 - 6$$

$$8x + 0 = -18$$

$$8x = -18 \rightarrow$$

Div by 8

$$\frac{8x}{8} = \frac{-18}{8}$$

$$1x = \frac{-18}{8} \rightarrow$$

$$x = \frac{-18}{8}$$

$$\frac{-9}{4}$$

Quadratic Equations

④

Can be written in form

$$\boxed{ax^2 + bx + c = 0}$$

- if $b=0$, then we can use same method
as earlier ~ remember

√

$$x^2 = 4$$

$$x = \pm\sqrt{4} = \pm 2$$

$$x^2 = W \rightarrow x = \pm\sqrt{W}$$

$$(-2)^2$$

$$= 2^2$$

$$x = -2$$

$$x^2 = (-2)^2$$

$$= +4$$

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

⑤

$b \neq 0$

- factoring (maybe) ~ spend 5 seconds trying

- quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Ex: Solve

$$8x + 1 = 5x - 9$$

Subtract $5x$

$$8x + 1 - 5x = 5x - 9 - 5x$$

6

$$3x + 1 = -9$$

Subtr 1

$$3x = -10$$

Div by 3

$$x = -\frac{10}{3}$$