

Code logic

example equation:

Solve for x in:

$$\frac{ax + b}{7} - 4 = 2$$

parse equation:

$$\boxed{\frac{ax + b}{7}} = \boxed{4} = \boxed{2}$$

extract characters/operators:

$$\boxed{a} \boxed{x} \boxed{+} \boxed{b} \boxed{\div} \boxed{7} \boxed{=} \boxed{4} \boxed{=} \boxed{2}$$

infer on missing notation:

$$\downarrow \quad \downarrow \quad \uparrow$$
$$(a * x + b) \div 7 - 4 = 2$$

solve problem:

step 1: +4

step 2: *7

step 3: -b

step 4: ÷ a

create animated solution:

see right column

animated solution:

$$\frac{ax + b}{7} - 4 = 2$$

step 1:
+4

$$\frac{ax + b}{7} - 4 \overset{+4}{\downarrow} = 2 \overset{+4}{\downarrow} \text{ move}$$

$$\frac{ax + b}{7} \overset{=0}{-4+4} = \overset{=6}{2+4}$$

dissolve

step 2:
*7

$$\overset{\text{slide}}{\rightarrow} 7 \left(\frac{ax + b}{7} \right) = (6) 7 \overset{\text{slide}}{\leftarrow}$$

$$\overset{\text{strike through}}{\cancel{7}} \left(\frac{ax + b}{\cancel{7}} \right) = \overset{=42}{(6)(7)}$$

add fraction

step 3:
-b

$$ax + b \overset{-b}{\downarrow} = 42 \overset{-b}{\downarrow} \text{ move}$$

$$ax + \overset{=0}{b-b} = 42 - b$$

dissolve

step 4:
÷ a

$$\overset{\text{slide}}{\rightarrow} \frac{ax}{a} = \frac{42 - b}{a} \overset{\text{slide}}{\leftarrow}$$

$$\overset{\text{strike through}}{\cancel{a}x} = \frac{42 - b}{a}$$

$$\boxed{x = \frac{42 - b}{a}}$$

box answer