

4 BIG IDEAS IN ALGEBRA.

$$\frac{3x + 5}{2} = 10$$

① THE LETTERS HOLD THE PLACE
OF UNKNOWN #S.

Ex: $2x = 50$

↳ THIS LETTER IS TAKING THE PLACE
OF AN UNKNOWN NUMBER

IN THIS CASE, THE # IS 25

② EQUALS (=) MEANS FOREVER.

If you do something on one side of an = sign, you must do the same thing on the other side.

$$\begin{array}{r}
 \$ \quad = \quad \$ \\
 1000 \quad = \quad 1000 \\
 + 56 \quad \quad + \\
 \hline
 1050 \quad = \quad \quad \quad
 \end{array}$$

③ WHEN TRYING TO FIND (SOLVE FOR) X,
WE MUST UNDO WHAT IS ALREADY BEING DONE.

DO THE OPPOSITE.

$$\begin{array}{r}
 X + 2 = 12 \\
 - 2 \quad - 2 \\
 \hline
 X \quad = 10
 \end{array}$$

SHOW IT MATHEMATICALLY.

$$a) 2 \cdot x = 40$$

$$b) \frac{x}{5} = 10$$

$$c) x^2 = 16$$

④ WHEN YOU ARE WORKING **BACKWARD**
 TO **FIND X** YOU NEED TO DO
BEDMAS BACKWARD. (SAMDEB.)

$$\begin{array}{r}
 8x + 2 = 18 \\
 \quad -2 \quad -2 \\
 \hline
 8x = 16 \\
 \frac{8x}{8} = \frac{16}{8} \\
 \boxed{x = 2}
 \end{array}$$

* If you have more than 1 thing being divided by a number $\frac{x+4}{5} = 20$
 put a **BRACKET** around the thing on top.

$$\frac{(x+4)}{5} = 20$$

$$\cancel{5} \cdot \frac{(x+4)}{\cancel{5}} = 20 \cdot 5$$

S
A
M
E
B.

$$x+4 = 100$$

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

$$\boxed{x = 96}$$

$$\frac{10x - 5}{3} = 20$$