

SOLVING EQUATIONS

* WHEN SOLVING EQUATIONS WE LIKE TO WORK BACKWARDS RATHER THAN SIMPLY GUESSING AN ANSWER

* WHEN EVALUATING WE USE ORDER OF OPERATIONS PEMDAS

SO WHEN WORKING BACKWARDS TO SOLVE WE USE SADMEP

EXAMPLE 1

$$2x + 3 = 13$$

$$\underline{-3 \quad -3}$$

$$2x = 10$$

$$\underline{2 \quad 2}$$

$$x = 5$$

THIS MEANS: WHAT NUMBER TIMES TWO

MINUS 3

PLUS 3 EQUALS 13?

DO OPPOSITES!

DIVIDE 2

BACKWARDS ORDER OF OPERATIONS

MOVE THE "PLUS" FIRST

THEN MOVE THE "TIMES"

EXAMPLE 2

$$15 = 6 - 3x$$

$$\underline{-6 \quad -6}$$

$$9 = -3x$$

$$\underline{-3 \quad -3}$$

$$\underline{-3 = x}$$

THIS MEANS: 6 MINUS 3 TIMES A

NUMBER EQUALS 15

NEGATIVE
3x

* THE 6 MOVES BEFORE THE -3x

THE 6 IS POSITIVE SO SUBTRACT 6

THIS MEANS -3 TIMES x EQUALS 9. OPPOSITE

IS DIVIDE BY -3

EXAMPLE 3

$$\begin{array}{r} 5 = 4 - x \\ -4 \quad -4 \\ \hline 1 = -x \\ -1 \quad -1 \\ \hline -1 = x \end{array}$$

THIS MEANS: 4 MINUS WHAT NUMBER
EQUALS 5?

*MOVE THE 4 FIRST; ALWAYS MOVE
AWAY FROM THE VARIABLE

→ THE 4 IS POSITIVE SO SUBTRACT

→ THE NEGATIVE SIGN STAYS WITH
THE X AS A -1.

*LAST STEP IS TO DIVIDE BY -1

EXAMPLE 4

$$\begin{array}{r} 6 + \frac{x}{2} = 17 \\ -6 \quad -6 \\ \hline 2 \cdot \frac{x}{2} = 11 \cdot 2 \\ \hline x = 22 \end{array}$$

THIS MEANS: WHAT NUMBER DIVIDED
BY TWO AND ADDED TO 6 EQUALS 17?
MOVE THE 6 FIRST!

→ NOW DO THE OPPOSITE OF DIVIDE
BY 2 WHICH IS MULTIPLY BY 2

*REMEMBER! YOU CAN ALWAYS CHECK YOUR WORK

$$6 + \frac{22}{2} = 17 \quad ?$$

TYPE INTO CALCULATOR

$$6 + 11 = 17 \quad \checkmark$$