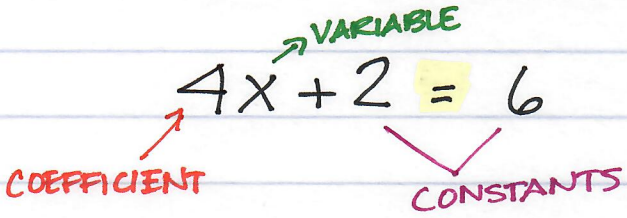
UNIT 4 EQUATIONS + INEQUALITIES

DEF

EQUATION: AN EQUATION IS A MATHEMATICAL SENTENCE CONTAINING AN EQUAL SIGN (=) THAT SHOWS 2 EQUIVALENT EXPRESSIONS.



DEF

SOLUTION TO AN EQUATION IS A NUMBER THAT CAN REPLACE THE VARIABLE TO MAKE AN EQUATION TRUE.

$x + 3 = 7$ $\quad$ $4 + 3 = 7$

SOLUTION IS 4. $\quad$ $7 = 7$ ✓

CHECK SOLUTION

1) SUBSTITUTE
2) EVALUATE
3) YES OR NO

PROB $x - 7 = 12$ $\quad$ $x = 8$

SUB $8 - 7 = 12$

EVAL $1 \neq 12$

NOT A SOLUTION

~~SUB~~ $x + 3 = 5$ $\quad$ $x = 2$

SUB $2 + 3 = 5$

EVAL $5 = 5$ ✓

YES

* SOLVING ONE-STEP EQUATIONS *

INVERSE OPERATIONS ARE OPPOSITE OPERATIONS THAT "UNDO" EACH OTHER

+	INVERSE	−
−	INVERSE	+
×	INVERSE	÷
÷	INVERSE	×

$2 + 3 = 5 - 3 = 2$

PROPERTY OF EQUALITY: IF YOU ADD, SUBTRACT, MULTIPLY OR DIVIDE A NUMBER FROM BOTH SIDES OF AN EQUATION, THE TWO SIDES REMAIN EQUAL.

$$\frac{3(2+7)}{3} - 7 = \frac{3(2+7)}{3} - 7$$

$$2 + 8 = 2 + 8$$

ISOLATE THE VARIABLE

SUBSTITUTION

ADD

$x + 10 = 17$

$-10 \quad -10$ ① INVERSE OPERATION

$x = 7$ ② SOLUTION

$7 + 10 = 17$ ③

$17 = 17 \checkmark$ ④ CHECK

SUBTRACTION

$x - 3 = 14$

$+3 \quad +3$ ①

$x = 17$ ②

$17 - 3 = 14$ ③

$14 = 14 \checkmark$ ④

MULTIPLICATION

$\frac{4x}{4} = \frac{16}{4}$ ①

$x = 4$ ②

$4 \cdot 4 = 16$ ③

$16 = 16 \checkmark$ ④

DIVISION

$2 \cdot \frac{x}{2} = 16 \cdot 2$ ①

$x = 32$ ②

$\frac{32}{2} = 16$ ③

$16 = 16 \checkmark$ ④