

LINEAR EQUATIONS

NO VARIABLES IN DENOMINATOR, NO RADICALS, NO EXPONENTS.
ONLY CONSTANT TERMS & VARIABLE(S) RAISED TO POWER 1.
CAN BE WRITTEN $ax + b = 0$.

e.g. $3x + 4 = 19$
 $3x = 15$
 $x = 5$
↑
SOLVED : VARIABLE = #

THE VALUE(S) OF x ("UNKNOWN") THAT CAUSE EQUATION TO BE TRUE ARE CALLED **SOLUTIONS**.

EQUIVALENT EQUATIONS HAVE THE SAME SOLUTION(S)

EASY TO CHECK IF A # IS A SOLUTION OR NOT

$$A = B \Leftrightarrow A + C = B + C$$

$$A = B \Leftrightarrow CA = CB$$

C CAN BE POSITIVE, NEGATIVE, OR ANY ALGEBRAIC EXPRESSION.

C CAN BE ANYTHING EXCEPT 0.

SOLVE:

ex. $4x - 1 = 23$

VAR LEFT, # RIGHT

ex. $-3x + 2 = -10$

LEFT, VAR RIGHT

ex. $6x - 5 = 10 - x$

ex. $\frac{2}{15}x + \frac{3}{7} = \frac{1}{6}x + \frac{9}{11}$

ex. $\frac{2x}{3} + \frac{1}{6} = \frac{3x}{4} - \frac{1}{2}$
CLEAR DENOM

NONLINEAR EQ'S THAT ARE EQUIVALENT TO LINEAR EQUATIONS

ex. $\frac{3}{x-2} = \frac{4}{2x+1}$ (CROSS MULT.)

ex. $\frac{1}{x} + \frac{1}{2x} - \frac{1}{3x} = 2$

ex. $\frac{1}{x+1} + \frac{1}{x-2} = \frac{x+3}{x^2-x-2}$

(MULT. BOTH SIDES BY LCD)

NOTE: WHEN WE MULTIPLY BOTH SIDES BY VAR. EXP. WE ARE ASSUMING WE AREN'T MULTIPLYING BY 0. WE NEED TO CHECK THAT SOLUTIONS MAKE SENSE!

ex.

$$2 + \frac{5}{x-4} = \frac{x+1}{x-4}$$

(No solution!)

$\curvearrowright \quad 2 = \frac{x-4}{x-4} \quad ?$

Solving Power Eq's

$$A^n = B \Rightarrow A = \sqrt[n]{B} \quad \text{IF } n \text{ IS ODD}$$

$$A = \pm \sqrt[n]{B} \quad \text{IF } n \text{ IS EVEN \& } B \geq 0$$

$$\text{No solution IF } n \text{ IS EVEN \& } B < 0$$

ex.

$$x^2 = 25$$

ex.

$$x^3 = -27$$

ex.

$$x^4 = -16$$

ex.

$$(2x+3)^2 = 4$$

Solving For one variable in terms of another

s

$$= \frac{d}{t}$$

$\Leftrightarrow$

$$st = d$$

$\Leftrightarrow$

$$t = \frac{d}{s}$$

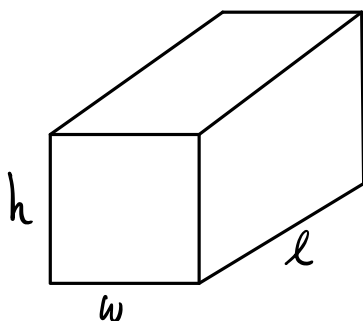
ex.

$$F = G \frac{mM}{r^2}$$

Solve for M

Solve for r

ex.



$$A = 2lw + 2lh + 2wh$$

Solve for h .

P.B. CLASSWORK
P.B. HOMEWORK

READ 1.1, 1.2

TUESDAY: P.B. QUIZ