Your Name

Mrs. T

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Notes

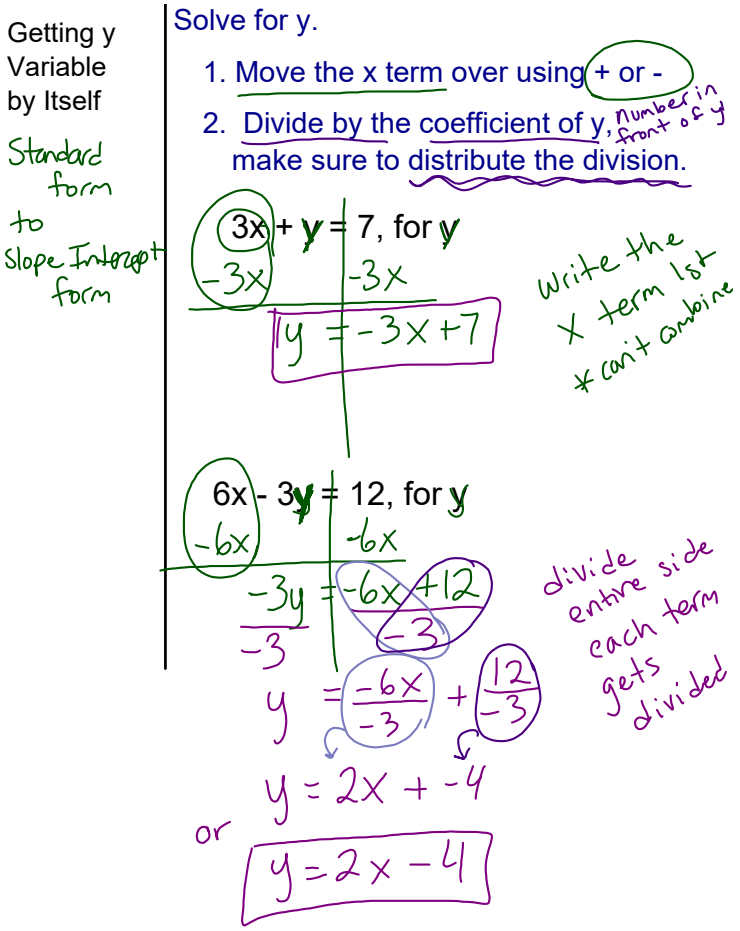
LESSON 1.5

SOLVING FOR A VARIABLE

Objective: To be able to solve for y in a linear equation in standard form.

Skill: Linear and other functions can come in different forms and you will need to be able to solve for y in future chapters.

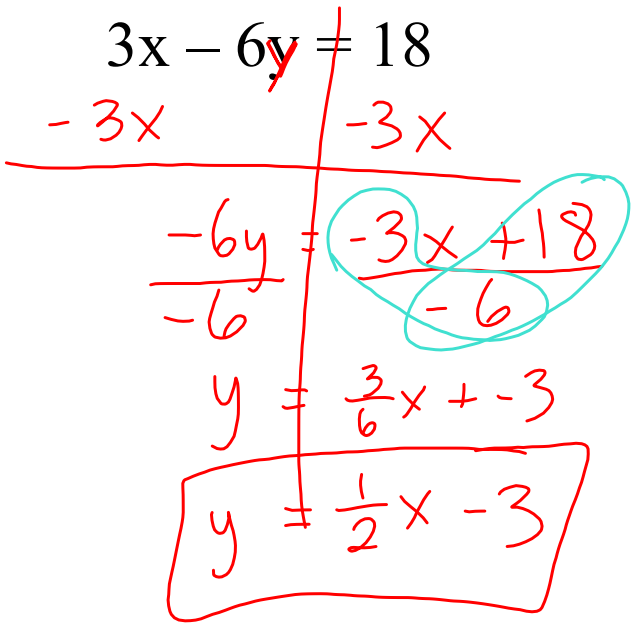
Life Lesson: If you understand how things work, you can manipulate (not in a bad way) the situation to get what you need and so it is clear what to do.



Wednesday Bellringer

Solve for y

$3x - 6y = 18$



Objective: To be able to solve for any variable in any formula.

Skill: In other scientific formulas you will need to solve for the missing variable.

Life Lesson: If you understand how things work, you can manipulate (not in a bad way) the situation to get what you need and in a formula, having the variable solved for makes it clear what you need to do.

Getting any Variable by Itself

pinpoint that variable, and anything added or subtracted makes it grouped separately. Undo in the opposite order of PEMDAS to that variable

15= 3n + 6p, for n

get n alone

1st • 3 undo 2nd

2nd + 6p undo 1st

$-6p \quad -6p$

$\frac{-6p+15}{3} = \frac{3n}{3}$

$-2p+5 = n$

$n = -2p+5$

Your turn!

$\frac{5}{1} \cdot \left(\frac{k-2}{5}\right) = (11j)\cdot 5$, for k

1st -2 undo 2nd

2nd $\div 5$ undo 1st

$k-2 = 55j$

$+2 \quad +2$

$k = 55j+2$

Solving for variables in Formulas

Speed is how far you drive in a certain amount of time

$s = \frac{d}{t}$ (distance per time)

Speed

$2.5 = \left(\frac{x}{2}\right) \cdot \frac{2}{1}$

$10 = x$

Solve for d, the distance.

(You are writing the formula so that you have distance in regards to speed and time)

$t \cdot s = \left(\frac{d}{t}\right) \cdot \frac{t}{1}$

$ts = d$

$d = st$

distance is speed times time

Solve for t the time

60mph for 230 miles how long will it take

$s = 60$ mph

$d = 230$ miles

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

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

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

$t = \frac{(230)}{(60)}$

$t = 3.8$ hours

Solving for variables in Formulas

Solve for the h height of the cylinder

$V = \pi \cdot r^2 \cdot h$ (π pi)

$\frac{V}{\pi r^2} = \frac{\pi r^2 h}{\pi r^2}$

$h = \frac{V}{\pi r^2}$

Solve for b

$A = \frac{1}{2} h \cdot b + c$

$-c \quad -c$

$2(A - c) = \left(\frac{1}{2} h \cdot b\right) 2$

$\frac{2A - 2c}{h} = \frac{hb}{h}$

$\frac{2A - 2c}{h} = b$

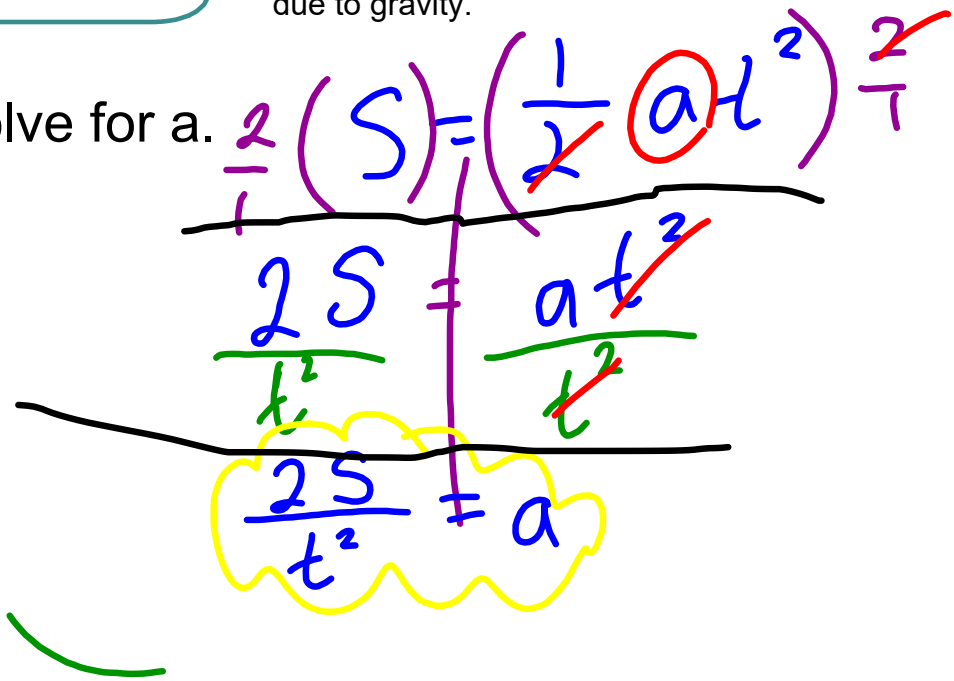
or

$b = \frac{2A - 2c}{h}$

$$s = \frac{1at^2}{2}$$

This formula represents the distance *s* that a free-falling object will fall near a planet or the moon in a given time *t*. Where *a* represents the acceleration due to gravity.

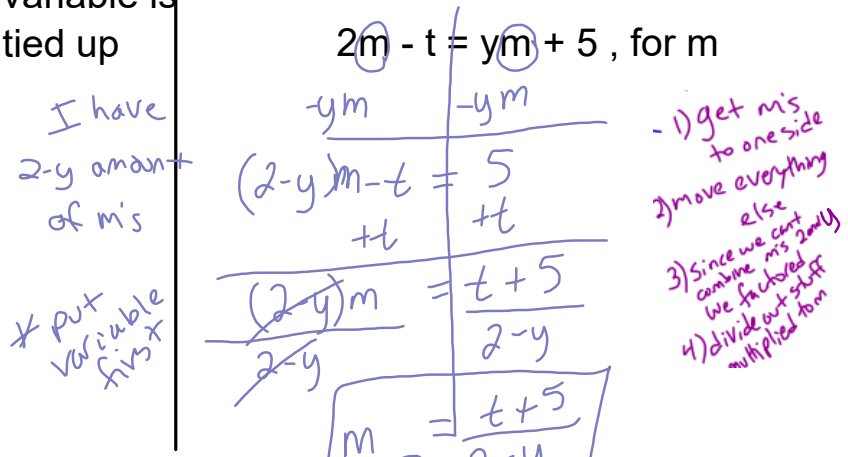
Solve for a.



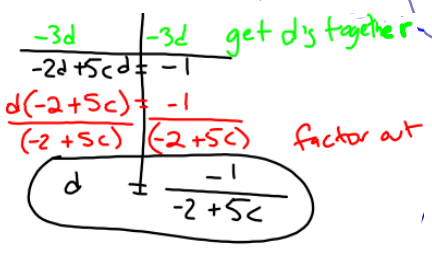
When the variable is tied up

When the variable is multiplied with another variable, factor it out.

$2m - t = ym + 5$, for m



$d + 5cd = 3d - 1$, for d



$6q - 18 = qrs$, for q