

Week 7 Algebra Virtual Notebook 2022-10-18

- **Virtual notebooks are graded** on completeness, correct responses, and work shown (if necessary) taken from the context of the articles you read or recordings you watch.
- **NO CREDIT** will be given for answers that are from other internet sources.
- **Each page to be filled out has a link** at the top left of the page that takes you to the resource to be used for notes.
- **Virtual Notebooks are designed** for you to fill out as you watch/read the lesson. This will help you retain the information you are learning in each lesson (it is basically guided notes!)
- **Learning in context is the best way for you to learn** and do well on your assignments.
- You may submit in many different ways! Just please cover all material that is listed in this notebook.

AUSTIN HORNER

Literal Equations Practice

Solve the following equations:

a) $y = mx + b$, for x

d) $A = \pi r^2$, for r

b) $ax + by = c$, for y

e) $2 = \frac{x}{y - z}$, for y

c) $A = \frac{1}{2}h(b + c)$, for b

f) $R(r_1 + r_2) = r_1 r_2$, for r_2

* TIPS FOR SOLVING LITERAL EQUATIONS

1. Find the **variable** in the equation

2. Isolate the **variable**:

a. Add / Subtract away everything else

b. Multiply / Divide away everything else

Solve the equation:

$$y = mx + b, \text{ for } x$$

$$\underline{-b} \quad \downarrow \quad \underline{-b}$$

$$\frac{y-b}{m} = \frac{mx}{m}$$

$$\frac{y-b}{m} = x$$

✦

Class example

$$y = mx + b$$
$$\frac{-b}{-b} \quad \frac{-b}{-b} \quad \textcircled{1}$$

$$\textcircled{2} \quad y - b = mx$$

$\textcircled{3}$ divide by m

$$\textcircled{4} \quad \frac{y-b}{m} = x$$

- solve for x
- show work
- screenshot + put in \checkmark

Just learned that Sketch-toy Lets you practice drawing, trace, animate, and share



I'm thinking of a math problem

Sketchtoy featured example

ker

NEW

SAVE

UNDO

ERASE

SIZE: 3

VIBRATION: 1

COLOR

f SHARE

f SEND

TWEET

$$\begin{array}{r} \cancel{ax} + by = c \\ - \cancel{ax} \quad - ax \\ \hline \end{array}$$

solve for y

subtract

$$\frac{\cancel{b}y}{\cancel{b}} = \frac{c - ax}{b}$$

divide by b

$$y = \frac{c - ax}{b}$$

* TIPS FOR SOLVING LITERAL EQUATIONS

1. Find the **variable** in the equation
→

2. Isolate the **variable**:
a. Add / Subtract away everything else
→

b. Multiply / Divide away everything else
→

Solve the equation:
 $A = \frac{1}{2}h(b + c)$, for b

$$\left(\frac{2}{h}\right)A = \frac{h}{2}(b+c) \left(\frac{2}{h}\right)$$

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

$-c \quad \downarrow -c$

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

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

Class example.

NEW

SAVE

UNDO

ERASE

SIZE: 3

VIBRATION: 1

COLOR

 SHARE SEND TWEET

$$\left(\frac{2}{h}\right) A = \frac{h}{2} (b + c) \quad \left(\frac{2}{h}\right) \text{ solve for } b$$

① multiply by reciprocal $\frac{2}{h}$

② subtract C

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

$$- c$$

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

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

Define your variable and write an equation, but do not solve, for the following situation.

The cost to purchase a song from myTunes is \$0.89 per song with no membership needed. To purchase a song from songIFY, you must be a member. The songIFY membership fee is \$10 and each purchased song costs \$0.49. How many downloaded songs, d , must be purchased for the monthly price of songIFY to be the same as myTunes?

MyTunes cost (M) = $(\$0.89) \times (d: \text{number of downloaded songs})$

$$M = 0.89d$$

SongIFY cost (S) = $(\$10 \text{ membership fee}) + (\$ 0.49) \times (d: \text{number of downloaded songs})$

$$S = 10 + 0.49d$$

Assuming that the \$10 is an annual SongIFY membership fee, or one time only, when is the cost of MyTunes the same as SongIFY?

$$M = S$$

$$0.89d = 10 + 0.49d$$

$$-10 = -10$$

----- subtract 10 from both sides

$$0.89d - 10 = 0.49d$$

$$-0.49d + 10 + 10 - 0.49d$$

----- add ten, subtract 0.49d from both sides

My notes from interesting
problem on test last week

$$0.40d = 10$$

multiply both sides by 100

$$(100)(0.40d) = (100)(10)$$

$$40d = 1000$$

divide both sides by 40

$$d = 1000/40 = 25$$

SOLUTION: 25 downloaded songs makes the cost of Songify equal MyTunes.

At first, MyTunes is cheaper, with no up-front cost and \$0.89 charged per song.

SongIFY costs \$10 up front, but the cost per song, \$0.49 is cheaper.

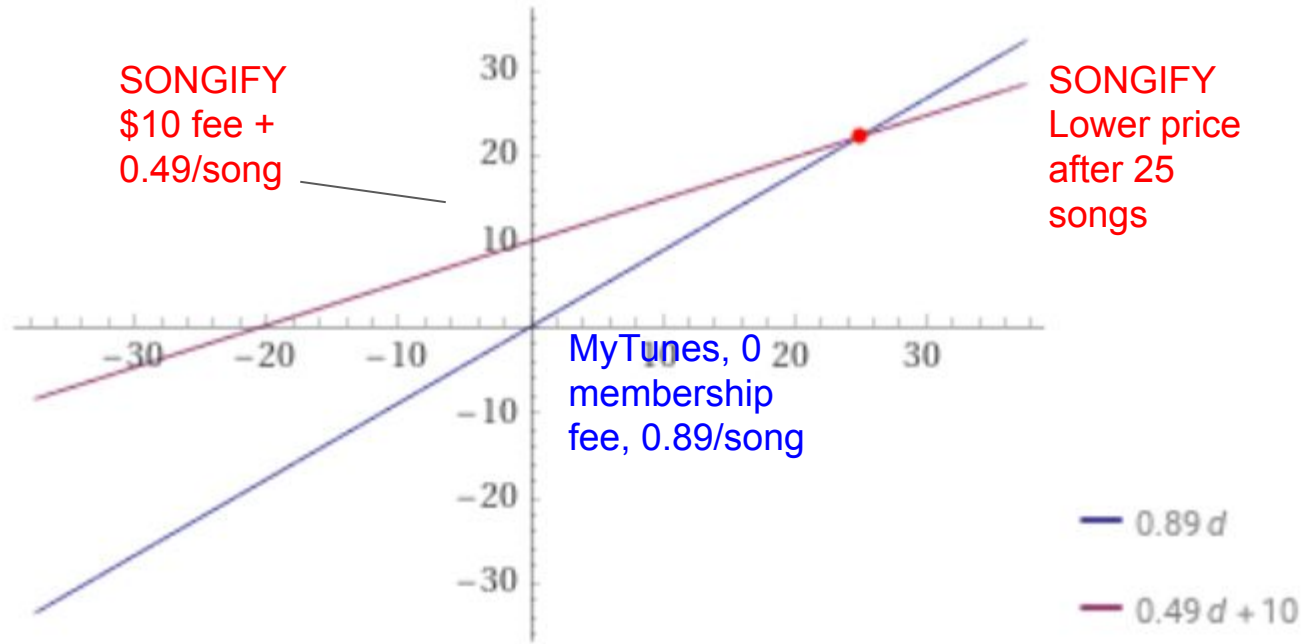
At 25 downloaded songs, the costs are equal:

$$\text{MyTunes: } 25(0.89) = 22.25.$$

$$0.89d = 10 + 0.49d$$

Plot

MYTUNES



Y intercept
\$10 fee +
price per
song

<p>Literal Equation</p>	<p>Has numbers, variables, and symbols. We have to solve for the variable or one of the symbols. The answer is not a number; it's a mix of numbers and variables, such as $y = mx + b$ which is the slope, intercept form of a linear equation.</p>
<p>How to solve a literal equation.</p>	<ol style="list-style-type: none"> 1. Identify the variable 2. Isolate the variable: 3. Add / subtract to eliminate other terms 4. Multiply / divide to eliminate coefficients
<p>Explain (or show) the steps you would take to solve $20 = 8x + 4y$ for y</p>	<p>(please see next slide)</p>

Solve the equation:

$$y = mx + b$$

$\frac{y - b}{m} = x$

- Solve for x
- Show work
- screenshot +

① $y - b = mx$ divide by m put in $\sqrt{\quad}$
 ② $\frac{y - b}{m} = x$

Solve the equation:
 $ax + by = c$, for y

$ax + by = c$ solve for y
 $\frac{by}{b} = \frac{c - ax}{b}$ subtract
 $y = \frac{c - ax}{b}$ divide by b

Solve the equation:
 $A = \frac{1}{2}h(b + c)$, for b

$\frac{2A}{h} = b + c$ solve for b
 $\frac{2A}{h} - c = b$ ① multiply by $\frac{2}{h}$
 $\frac{2A}{h} - c = b$ ② subtract c

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

Your Turn - Solution

Solve the literal equation for y .

$$3x + 6y = 36$$

$-3x$

$-3x$

$$\frac{6y}{6} = \frac{-3x + 36}{6}$$

$$y = -\frac{1}{2}x + 6$$

Class video

$$A = \pi r^2$$

$$P = 2w + 2l$$

Area circle

Perimeter rectangle

$$V = Bh$$

Volume = base x
height

$$A = \frac{1}{2}bh$$

Triangle

Why Rewrite a Literal Equation?

Consider linear equations and the three different forms.

$$y = mx + b$$

Slope-intercept Form

$$y_2 - y_1 = m(x_2 - x_1)$$

Point Slope Form

$$Ax + By = C$$

Standard Form

FORMULAS

$I = Prt$

$$F = \frac{9}{5}C + 32$$

Simple Interest

$$C = \pi D$$

$$D = vt$$

Class video 2022-10-18

$$A = \pi r^2$$

$$P = 2w + 2l$$

Area circle

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Triangle

FORMULAS

$$I = Prt$$

$$F = \frac{9}{5}C + 32$$

Simple Interest

$$C = \pi D$$

Use the formula for the area of a trapezoid:

$$A = \frac{h(b_1 + b_2)}{2}$$

A = area, h = height, b_1 = one base, b_2 =
other base

Ck 12

$$D = vt$$

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$$V = Bh$$

Your Turn - Solution

Solve the literal equation for y .

$$\textcircled{y} - 4 = \frac{1}{2}(x - 6)$$

$$\begin{array}{r} \textcircled{y} - 4 = \frac{1}{2}x - 3 \\ +4 \qquad \qquad +4 \end{array}$$

$$y = \frac{1}{2}x + 1 \cdot$$

POINT SLOPE FORM

SLOPE - INTERCEPT
FORM

Literal Equation	Has numbers, variables, and symbols. We have to solve for the variable or one of the symbols. The answer is not a number; it's a mix of numbers and variables, such as $y = mx + b$ which is the slope, intercept form of a linear equation.
How to solve a literal equation.	<ol style="list-style-type: none">1. Identify the variable2. Isolate the variable:3. Add / subtract to eliminate other terms4. Multiply / divide to eliminate coefficients
<i>Explain (or show) the steps</i> you would take to solve $20 = 8x + 4y$ for y	<ol style="list-style-type: none">1. Identify variable: y2. Isolate y. Subtract $8x$ from both sides3. $20 - 8x = 4y$. Divide both sides by 44. $y = (20 - 8x)/4$

What is a **formula**?

$$A = \pi r^2$$

Is the formula for the area of a circle

Explain, *in your own words*, how a formula is different than a literal equation. Use full sentences.

A formula is a literal equation for a particular purpose. Both specify the relationship between various parameters, variables, constants, and coefficients.

Click and drag the following steps in order to solve the formula for ***h***.

$$A = \frac{1}{2}bh$$

1

$$(2) A = \frac{1}{2}bh \quad (2)$$

2

$$\frac{2A}{b} = \frac{bh}{b}$$

3

$$2A = bh$$

4

$$\frac{2A}{b} = h \quad \text{or} \quad h = \frac{2A}{b}$$

5

OREGON CHARTER ACADEMY

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Help

Algebra 1A-S1-4(A,C,E) 9(B) Johnson > Assignment Assignment successfully submitted.

Immersive Reader

Oregon Charter Academy - 2...

W07 Virtual Notebook

New Attempt

Due Tuesday by 11:59pm Points 5 Submitting a website url or a file upload

Submit your Virtual Notebook below. If you do not receive full credit, please check the 'comment' section where I will leave feedback about how to fix it and get full credit.

- Your virtual notebook is graded on **showing all of your work**, not right answers.
- You may do this in many different ways, please just cover the same material that is in this assignment.
- You will **not** receive credit for searching the internet for answers - these are designed for you to learn in context.
- PLEASE **only** submit as a PDF, .pptx, or the google link (with your **share** settings set so I can view) - please **do not** upload screenshots of your VN.

Submission

Submitted!

Oct 18 at 10:17pm
Submission Details
View the Original Page

Comments:
No Comments