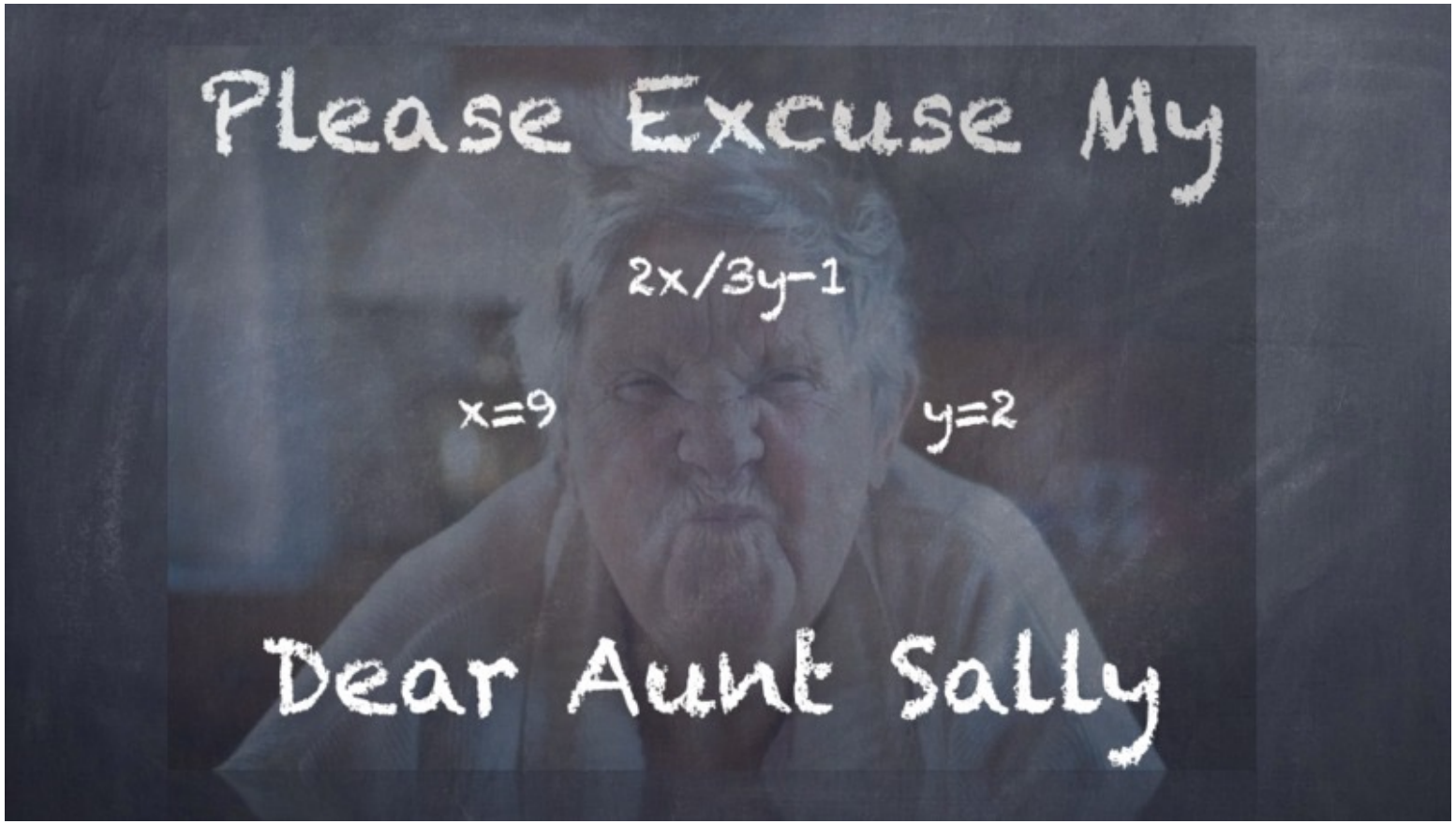
MATH 132

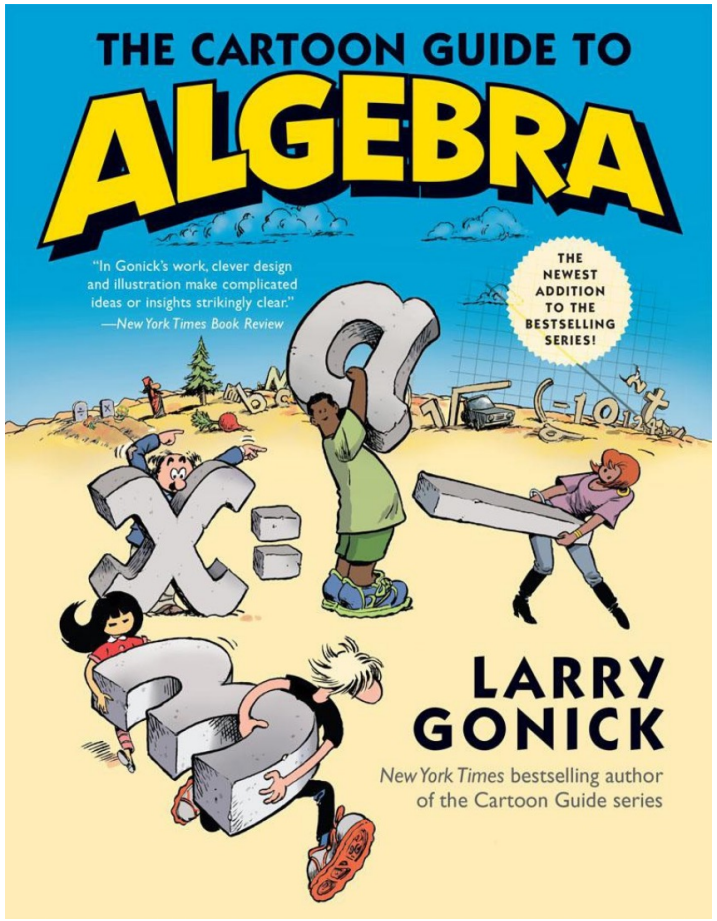
Lesson 1: Order of Operations
Exercise

What do you call it?

Order of Operations in the World
BODMAS - PEMDAS - PODMAS



Ghastly (10+((((1+2)+(3x4))-9)+(7x8)))/9



Order was established and the above expression could be cleaned up

(10 + 1 + 2 + 3x4 – 9 + 7x8) ÷ 9

Try these. Evaluate:

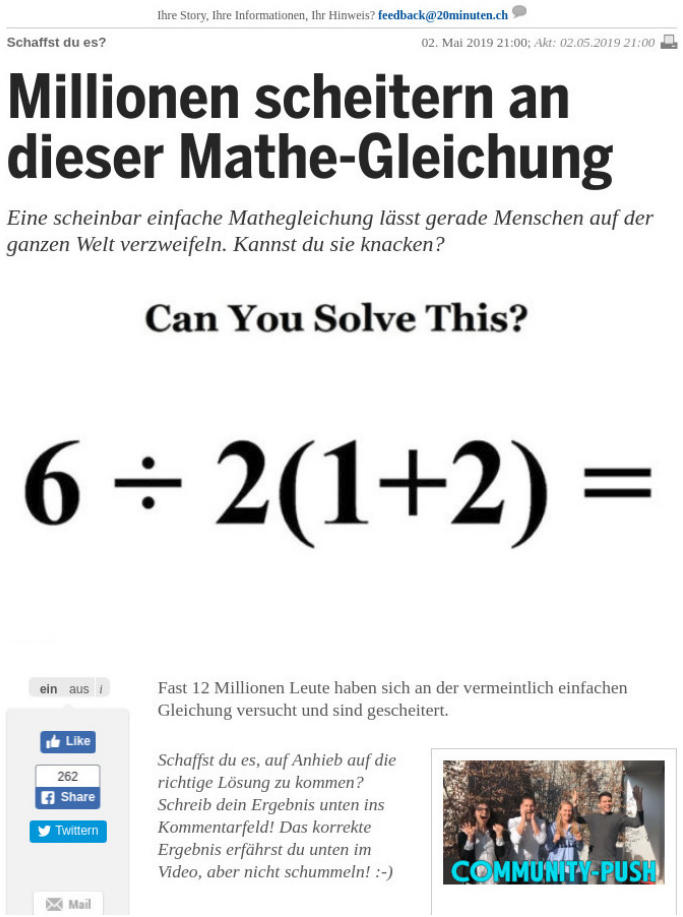
1) $5 - 2 \cdot 3$

2) $1 - \frac{4}{-2}$

3) 3(4/6+2·7)

Answers: 1) -1
2) 3
3) 44

How the internet responded - "thread wars"



Ihre Story, Ihre Informationen, Ihr Hinweis? feedback@20minuten.ch

Schaffst du es?

02. Mai 2019 21:00; *Akt: 02.05.2019 21:00*

Millionen scheitern an dieser Mathe-Gleichung

Eine scheinbar einfache Mathegleichung lässt gerade Menschen auf der ganzen Welt verzweifeln. Kannst du sie knacken?

Can You Solve This?

$$6 \div 2(1+2) =$$

ein aus

Like

262

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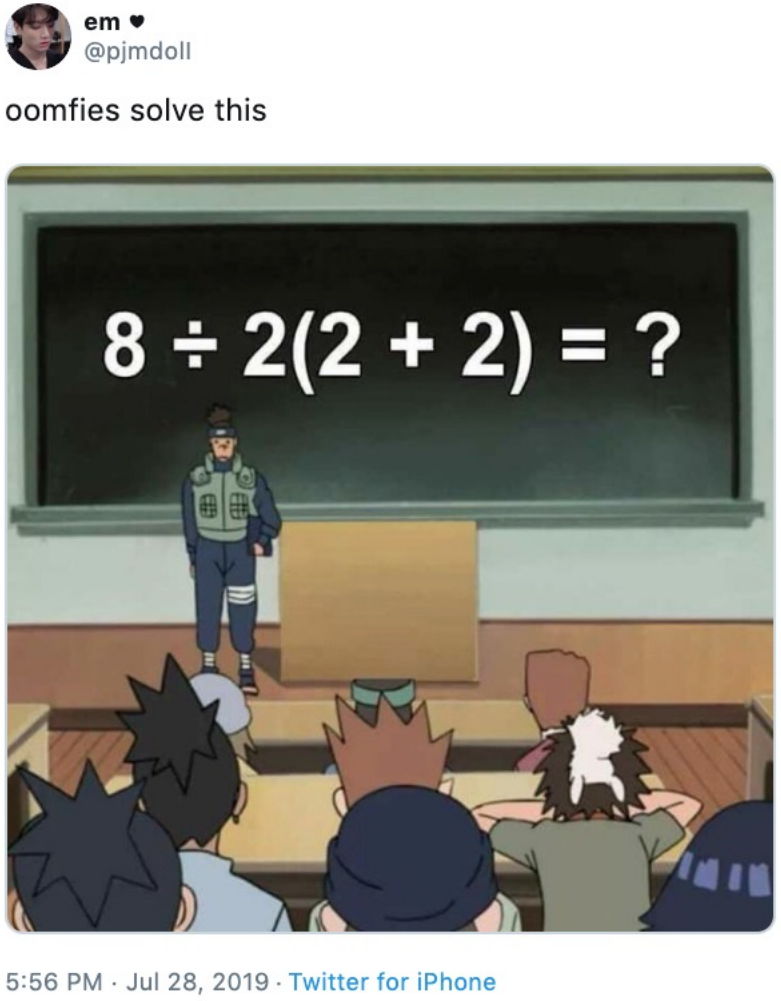
Fast 12 Millionen Leute haben sich an der vermeintlich einfachen Gleichung versucht und sind gescheitert.

Schaffst du es, auf Anhieb auf die richtige Lösung zu kommen? Schreib dein Ergebnis unten ins Kommentarfeld! Das korrekte Ergebnis erfährst du unten im Video, aber nicht schummeln! :-)

Left: Some said the answer was 9. Others insisted on 1.

Right: Some said 16 while others defended a result of 1.

What exactly is the issue? Could there be room for both interpretations?



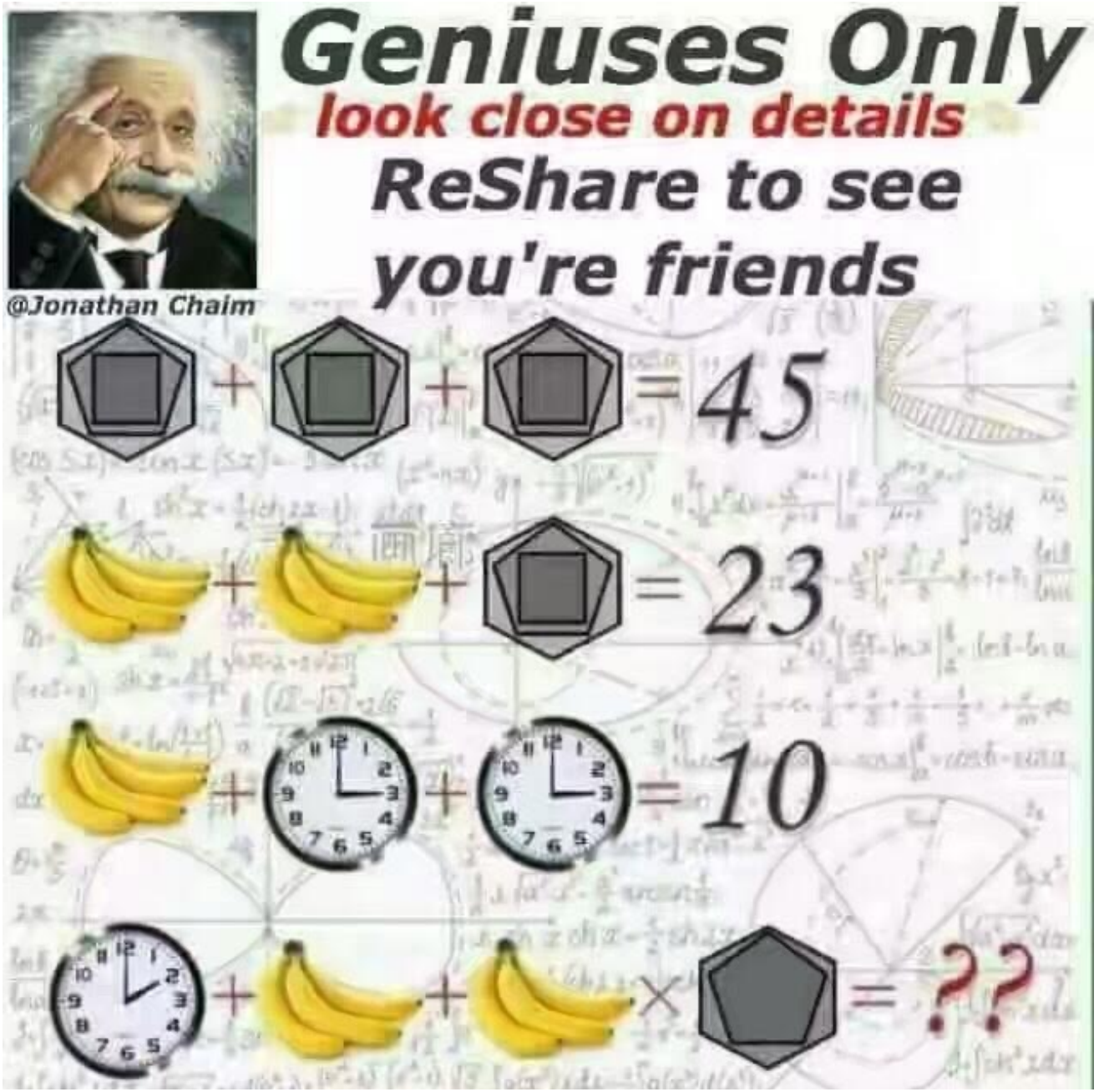
em ♥
@pjmdoll

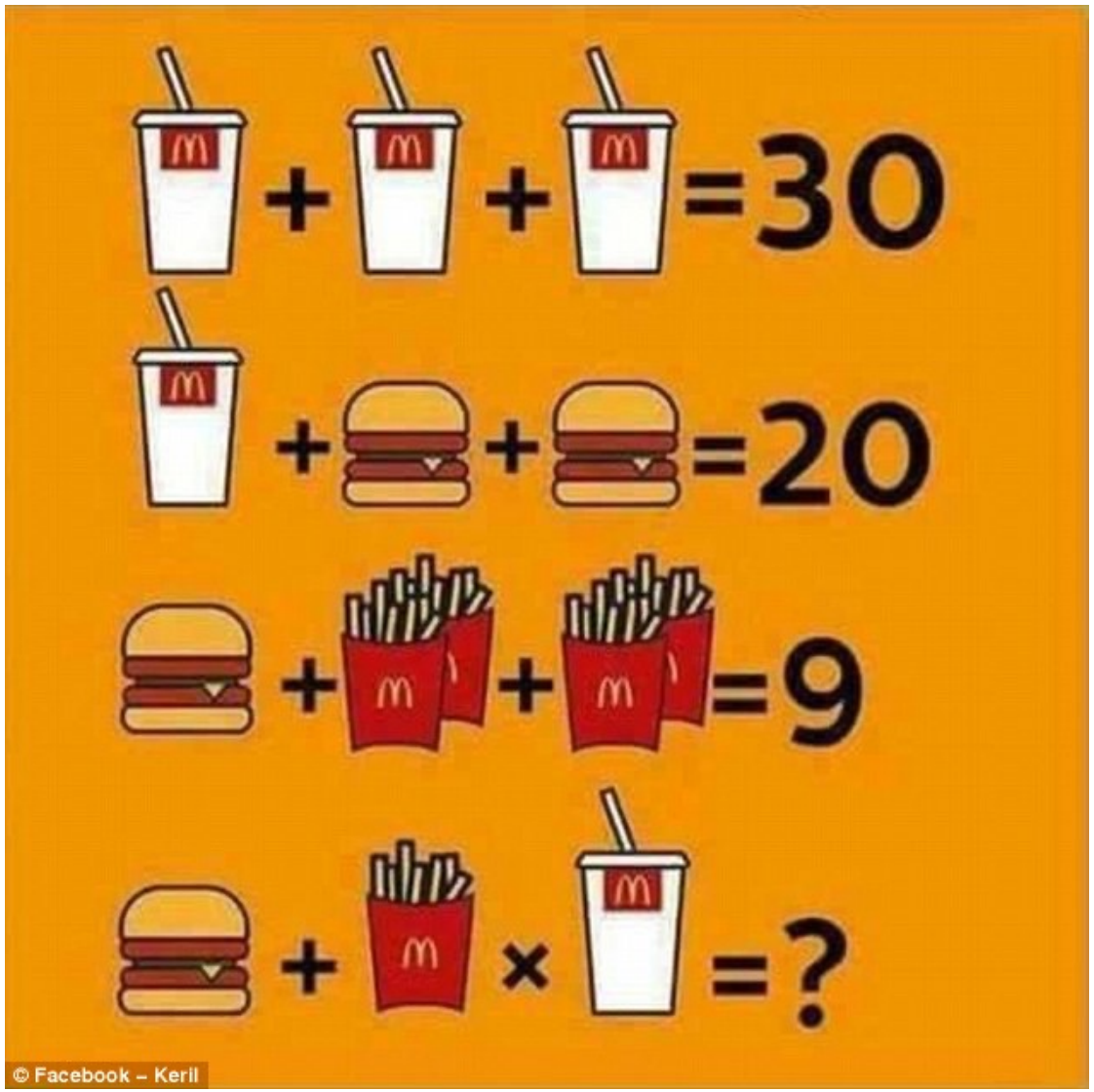
oomfies solve this

5:56 PM · Jul 28, 2019 · Twitter for iPhone

A lot of math is about perception and detail in the use of symbols

The answer to the problem on the bottom row is: 38





What is the answer to the problem on the bottom?

The answer is: 15

There can be a wide variety of symbols we use to indicate multiples of something. The adoption of our base-10 numeral system worldwide took centuries, and even now some still have two mathematical languages: one for science and commerce and the other for sacred applications.

Additional Reading

Article about PEMDAS, BODMAS

Open Textbook – The Hindu-Arabic Number System

First link: https://byjus.com/maths/pemdas/

Goal: Use Multiple Representations To Solve a Math Problem

Description: What is the relationship between time (t) and interest (I) in a simple interest situation if the annual interest rate is 4% (or 0.04) and the amount borrowed (P) is $200? Also, it is known that Interest (I) is given by the formula I = Prt

Equation: Start with I = Prt

Table:

t = x	I = y
0	
1	
	40
12	

MATH 132 Day 1 Activity Instructions

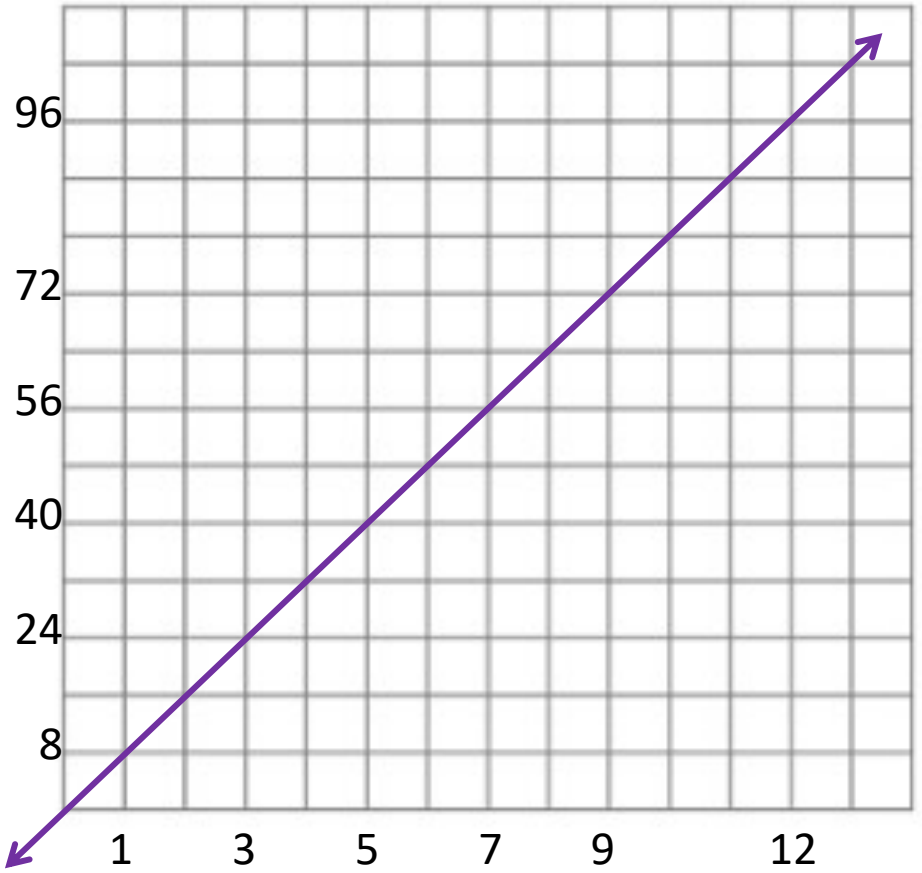
- Make a graph of the relationship between time (t=x) in years and interest (I = y) in $. Label the axes. I is on the vertical, t is on the horizontal. Use the fact that the Interest formula is: I = Prt
- You may **simplify** the formula and write an equation using y = f(x) notation. Time (t) is going to be “x” and Interest (I) is “y”.
- Fill in the table with the missing values
- Exit ticket questions:
- Is this a function? If the loan period is 15 years, what is the domain? What is the range? Is the equation linear? If so, what are the slope and y-intercept? What is the monthly payment?

Goal: Use Multiple Representations To Solve a Math Problem

SOLUTION

Equation: Start with I = Prt Change “t” to “x” and “I” to f(x) and we have: f(x)= Prx

Graph:



Simplify: P = 200 and r = 0.04
200 times 0.04 = 8

The equation becomes: f(x) = 8x OR y = 8x

Table of Values:

t=x	I=y
0	0
1	8
5	40
12	96

MATH 422 Day 1 Activity Instructions

SOLUTION

- Exit ticket questions:
- Is this a function? YES… there is one value of y for every x
- If the loan period is 15 years, what is the domain? Answer: 0 to 15 years (the x interval of time)
- What is the range? Answer: y goes from 0 to 120 during the time from 0 to 15 years (total interest is $120)
- Is the equation linear? YES
- If so, what are the slope and y-intercept? Slope = 8, y-intercept = 0
- What is the monthly payment? In 15 years, there will be 180 payments. 200 + interest = $320 Monthly payment will be 320 divided by 180 = $1.78

Math 132

Lesson 1 Average Rate of Change

(Using Excel to graph (x,y) from data)

Objective: How to Get the Most Out of Your Textbook

- Before next class you should have read pages 1-26, all included in the first module
- Make index cards of concepts in **boldface** print
- On paper, work through examples on pages 19-21
- Examples 1-4
- Plus “Try It Now”

Gas Prices in the United States: Getting the most out of Excel

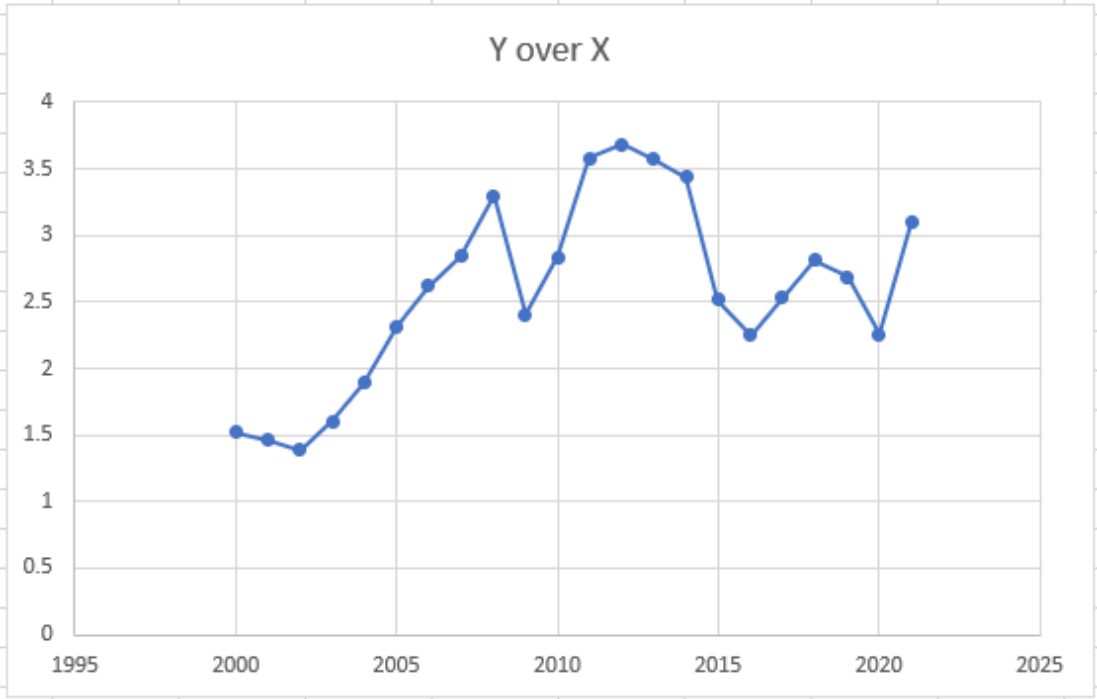
- Get real data
- Put it in Excel

U.S. All Grades All Formulations Retail Gasoline Prices (Dollars per Gallon)

Decade	Year-0	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6	Year-7	Year-8	Year-9
1990's				NA	1.078	1.158	1.245	1.244	1.072	1.176
2000's	1.523	1.460	1.386	1.603	1.895	2.314	2.618	2.843	3.299	2.406
2010's	2.835	3.576	3.680	3.575	3.437	2.520	2.250	2.528	2.813	2.691
2020's	2.258	3.100	4.059							

Source: [eia.gov](eia.gov)

X	Y over X
2000	1.523
2001	1.46
2002	1.386
2003	1.603
2004	1.895
2005	2.314
2006	2.618
2007	2.843
2008	3.299
2009	2.406
2010	2.835
2011	3.576
2012	3.68
2013	3.575
2014	3.437
2015	2.52
2016	2.25
2017	2.528
2018	2.813
2019	2.691
2020	2.258
2021	3.1



Scatter Plot with Markers

Average Change in Gas Prices from 2000 to 2022

Using the formula on the bottom of page 19:

Average rate of change = (4.059-1.523)/(2022-2000)

Simplified to 2.536/22

Which is +$0.1153