

# Warm Up

1. Dayanna decides to start working at a comic shop her beginning salary is \$35,000. Her boss offers her two options for career growth. She can continue growing at a steady rate of 4% per year or choose an option that would continuously compound her income by 3%. If she plans to work there for 5 years, which option yields the higher salary?

Option 1 - Simple Growth

$$f(x) = 35000(1+.04)^5$$

$$f(x) = \$42,582.85$$

Option 1

Option 2 <sup>continuous comp</sup>

$$f(x) = 35000e^{.03(5)}$$

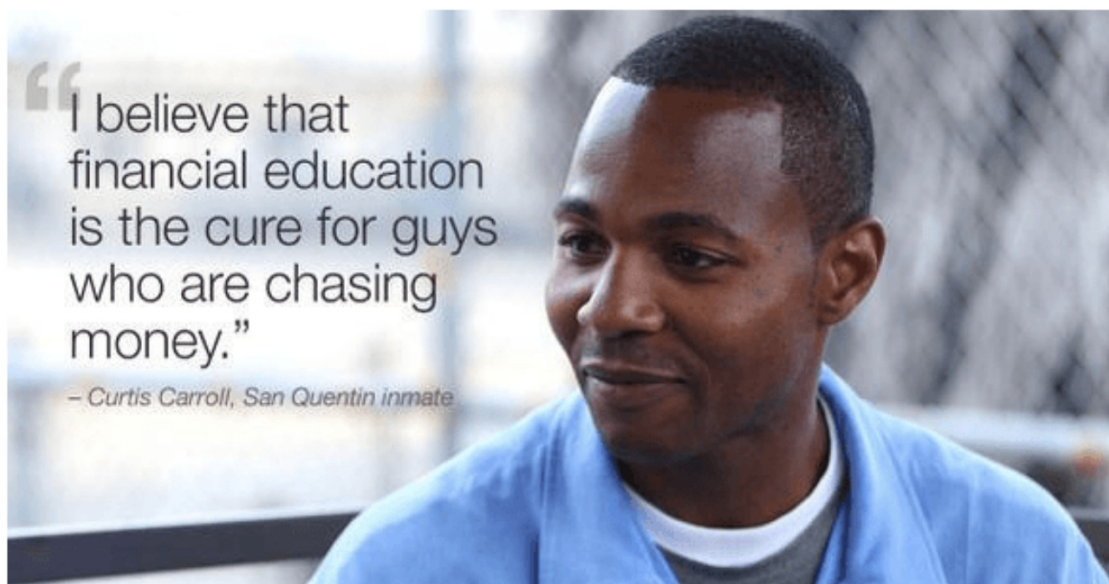
$$f(x) = \$40,664.20$$

Objective 2.2: I can analyze all types of interest problems

### **Why?**

In order to be competent problem solvers and decision makers, we must be financially literate and understand investment options when trying to make smart choices with our money!

## Curtis "Wall Street" Carroll



<https://www.youtube.com/watch?v=F89eycANUrQ>

## 2.2 Types of Interest

### Simple Interest

$$f(x) = a(1+tr)^x$$

initial value      rate (in decimal)      # of years

### Compounding Interest

$$f(x) = a\left(1 + \frac{r}{n}\right)^{nx}$$

initial value      # of times compounded      time (in years)

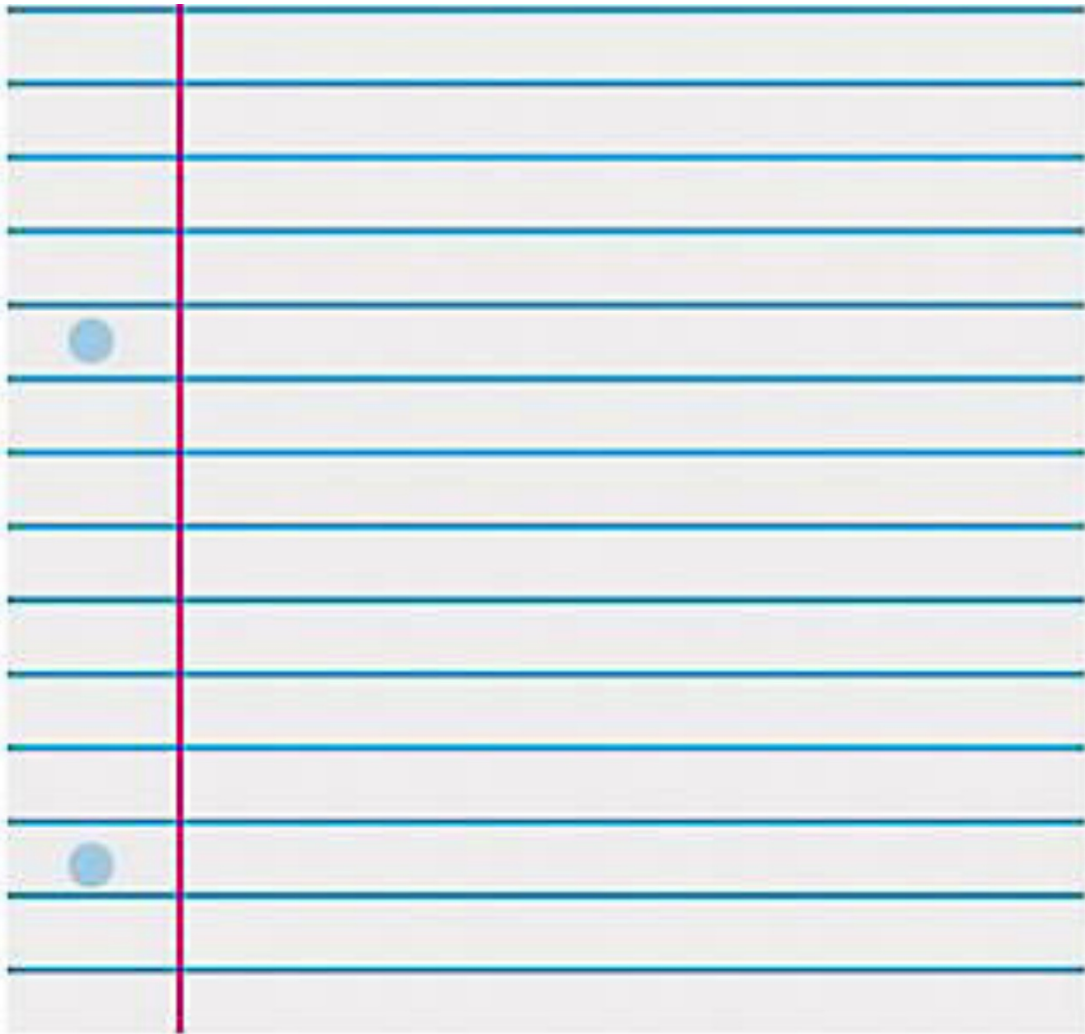
annually $n=1$	monthly $n=12$	Quarterly $n=4$	daily $n=365$
semiannually $n=2$		weekly $n=52$	

### Continuous Compounding $Pert$

$$f(x) = ae^{rx}$$

initial value      Euler's #       $\rightarrow$  2<sup>nd</sup> Ln





## **Little Slips!**

Slip 1 - D

Slip 2 - C

Slip 3 - B

Slip 4 - A

Slip 5 - A++

**ONLY** work  
on 1 slip at  
a time!

## ChoiceBoard

- Pick 4 of the squares to complete
- Show all work
- Define all variables for each
- Complete them all = bonus points!



# **Create a Poster with each of the growth interest formulas**

## **Include:**

- **Keywords**
- **variables**
- **visual**
- **color**
- **creativity**