Where to Get Help

- Class
- Office hours
- Math lab
- ASULearn (Forums, feedback on activities)
- advice from prior students

I care about you and your success!

http://alangregerman.typepad.com/.a/6a00d83516c0ad53ef0168e783575e970c-800wi

Interest: 10.3 in The Heart of Mathematics

- Babylonians 20% interest: 20 out of 100 = $\frac{20}{100} = .20$

YBC 04698: 17 problems statements on interest rates, prices and profit
`https://cdli.ucla.edu/dl/photo/P255010.jpg`

- Latin “id quod inter est” or “that which is between.”
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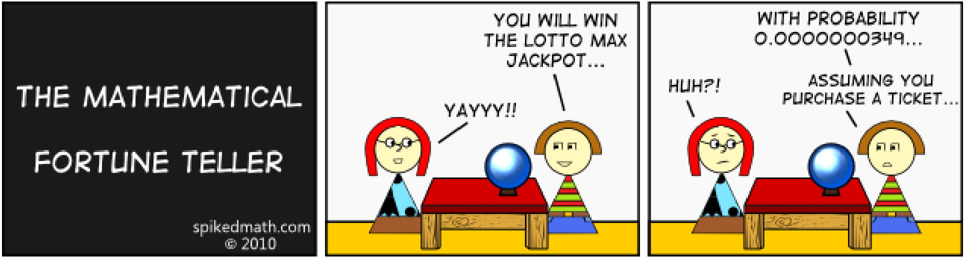
- year 142?

How We Derived the Lump Sum Formula

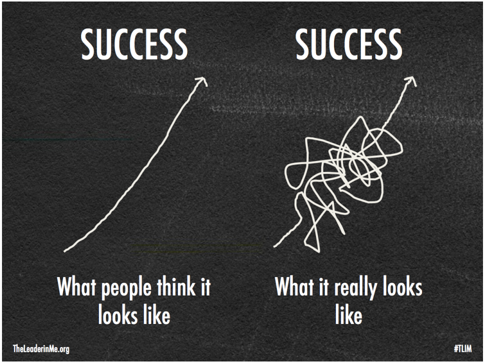
We obtained the general formula for lump sum using the total from the year before to calculate the principal and interest for the next year. This process works fine, but is too difficult to use when the number of years is large. So we looked for a way to obtain a simplified formula. We looked for the commonality and recognized the repeated appearance of (1+rate) after factoring. Once we found this pattern, we used it to find a simplified formula.



http://spikedmath.com/355.html

Take out the 1010 Personal Finance and Beyond Algebra T/Th Questions handout

- The purpose of *think-pair-share* activities is to practice concepts, computational strategies, and critical & creative thinking and communication.
- May be a lag at times—use this to **review** related concepts and examples, and **add** to your notes



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b) $1000(1+\frac{.05}{12})^{1704}$

c) other

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Which is better interest in this scenario, compounding annually, compounding monthly, or are they the same?

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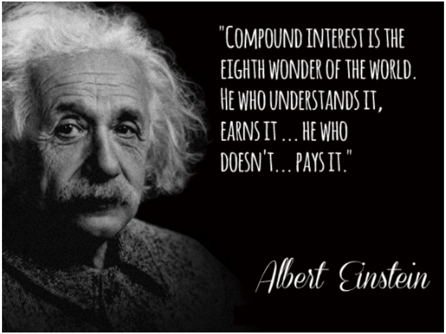
Which is better interest in this scenario, compounding annually, compounding monthly, or are they the same?
total = lump (1 + periodic rate) $^{\#\text{times we actually compound}}$
interest = total − amount put in as a lump sum

What kind of world are we making? can we be making?

What does our interest look like, how do we know, and how do we represent it? Pros and cons and other possibilities...

- diverse perspectives including local to global connections
- truth & consequences, the role of chance and probability
- ways that diverse people succeed in and impact mathematics
- what mathematics is & offers



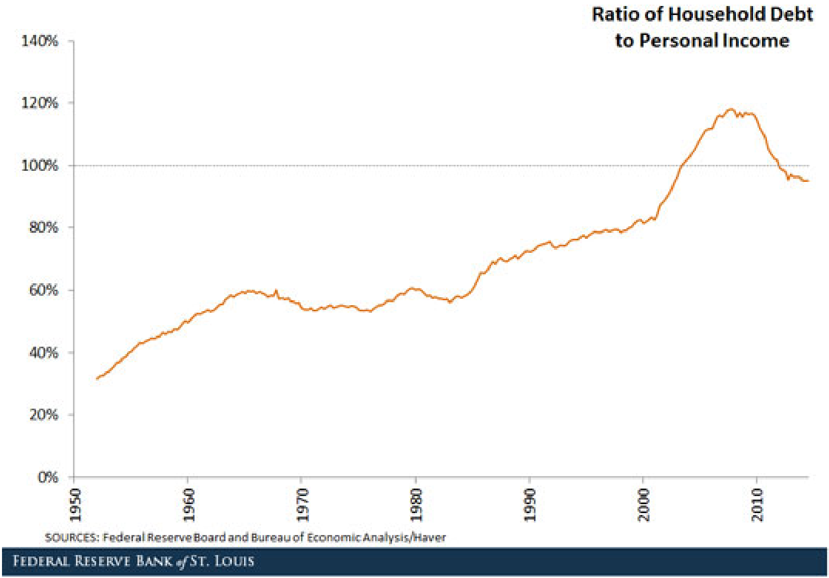
http://www.investingtips360.com/leverage-the-power-of-compounding-interest/

2. Which do you think best explains why it does make sense to charge interest?

a) historically, animals, land and other property was lent out, and a part of the actual growth of the living animals, crop, etc, were given back to the lender.
b) when a bank or someone loans money they should reasonably expect to make back what they could have earned elsewhere, if they aren't running a charity.
c) can help cover risk, liabilities and losses for people who don't pay back
d) helps generate business and keeps the economy moving
e) other

The role of chance and probability in financial forecasts

- All financial forecasts, whether about the specifics of a local business, like sales growth, or predictions about the global economy as a whole, are informed guesses based on historical data and other analyses.
- Historical data is all we have to go on and there is no guarantee that the conditions in the past will persist into the future.
- Dividing reward/risk is a common ratio to compare risk versus reward.



www.stlouisfed.org/on-the-economy/2015/march/mortgage-debt-and-the-great-recession

3. Which do you think is most compelling of why it might not make sense to charge interest?

a) abuses of the system with interest way too high (for example, sharecropping, or in 1304 interest rates in Nuremberg were 220%!) and the system may contribute to concentrating wealth in the hands of a small minority
b) there is not enough money in existence to pay back all that is currently loaned out
c) in numerous religions over time, including Christianity, Judaism, and Islam, there were prohibitions against charging interest on money to members of the community (usury), but was ok for strangers. Lending to your neighbor was considered philanthropy and part of a giving back to the community. [Responsibilities of Community Membership]
d) we can't plant gold coins and get a bumper harvest of more gold coins
e) other

4. If you were going to design an independent, self-sustaining, space mission, who travel far away to continually explore the geometry of the universe, would you charge interest within that community (as they are traveling)?

a) yes
b) no
c) in some instances but not in others

5. Real-life situation: Past student was told that her certificate of deposit (CD) will be compounded monthly at 8% for 8 months, and is told that this 8% will apply each and every month (i.e. is the monthly rate). Let's say that she put in \$1000. How much would her CD be worth at the end of 8 months if the annual rate was indeed $8 \times 12 = 96\%$ instead of 8% that every other bank would mean?

a) $1000(1 + .08)^8$
b) $1000(1 + \frac{.08}{8})^8$
c) $1000(1 + .\frac{08}{12})^{8 \times 12}$
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e) none of the above

What did the bank really mean?

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lump amount, time length, rate, or number of times compounding per year might be the unknown

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- cell is denoted by its column, row: A1
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	A	B	C
1	total savings	months	years
2	=1000*(1+.96/12)^B2		=B2/12