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MATH: Percent Change in US Household Debt

In order to make informed financial decisions, it is important to look at the big picture. Knowing how household debt is changing year to year can reveal national trends and help you understand where your finances fit in.

Math Topics	Personal Finance Topics
• Percent Change	• Auto Loans • Credit Card Debt

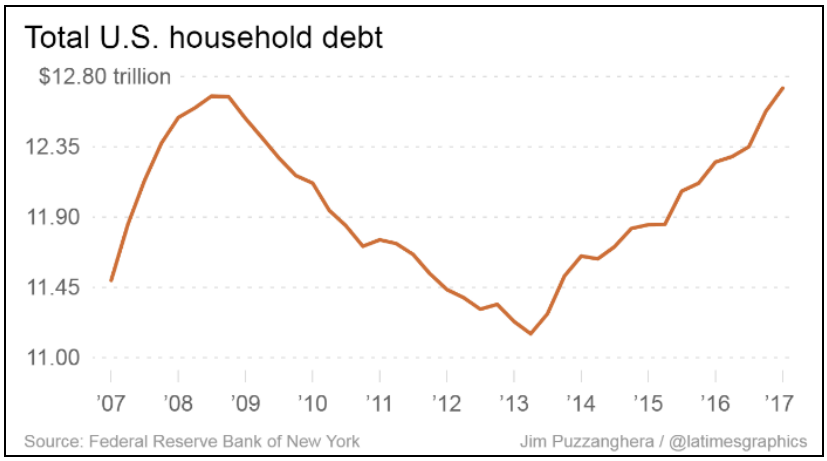
EdPuzzle Video

Part I: Examples

Example 1:
Approximate the percent change in total US household debt from 2012 to 2015. Round to the nearest 10th of a percent.

Step 1: Identify newer and older data points from the graph.

Newer (2015) → about 11.9 trillion
Older (2012) → about 11.45 trillion



Step 2: Substitute values into the formula

$$\frac{Newer\ value - Older\ value}{Older\ value} \cdot 100$$

$$\frac{11.9 - 11.45}{11.45} \cdot 100$$

Step 3: Use order of operations to reduce and find the percent change.

$$\frac{11.9 - 11.45}{11.45} \cdot 100 = \frac{0.45}{11.45} \cdot 100 = 0.0393 \cdot 100 = 3.9\%$$

Solution: From 2012 to 2015 there was an approximate 3.9% increase in total US household debt.

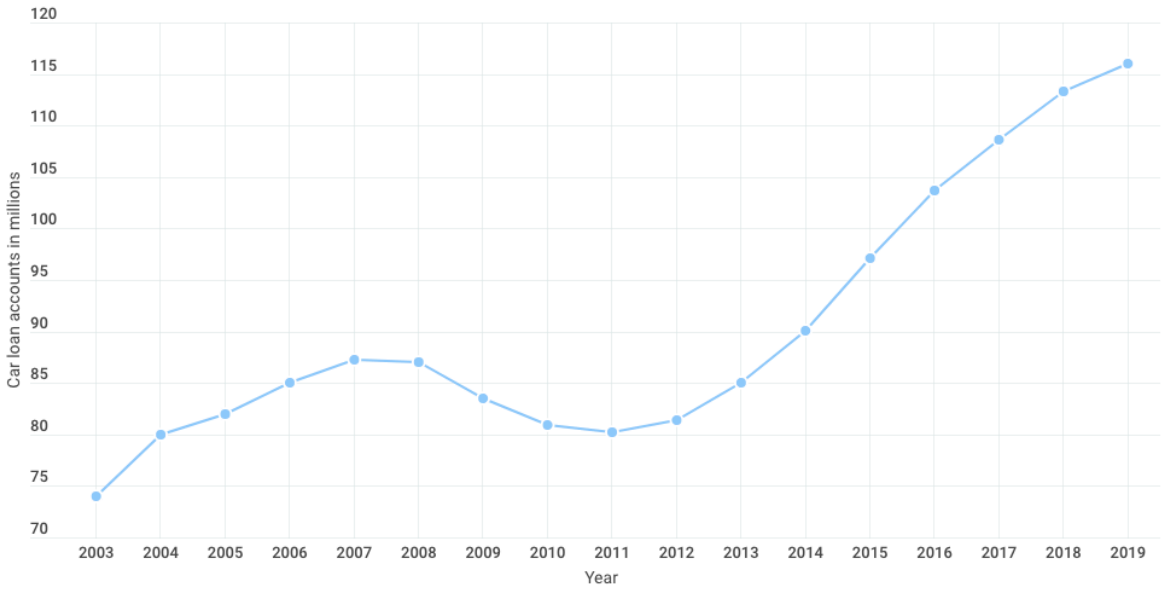
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Part II: Practice Problems

Complete the following practice problems and show your work in the space provided. Round your answers to the nearest tenth of a percent. Then, write your final solution in the answer boxes.

For questions #1 and #2, use the following chart:

Number of Car Loan Accounts in the US



Source: Federal Reserve Bank of New York's Quarterly Report on Household Debt and Credit for 2019: Q4

Question 1	Answer
From the year 2011 to the year 2019, the total number of car loans in the US increased. What is the percent change from 2011 to 2019?	

Question 2	Answer
From the year 2007 to the year 2011, the total number of car loans in the US decreased. What is the percent change from 2007 to 2011?	

For questions #3 and #4, use the following chart:

US Credit Card Debt (in billions)



Source: https://www.creditkarma.com/insights/i/credit-card-debt-hit-record-high-end-2018

Question 3	Answer
What was the percent increase or decrease in US credit card debt from Quarter 2 of 2008 (Q2 2008) to Quarter 3 of 2013 (Q3 2013)?	

Question 4	Answer
What was the percent increase or decrease in US credit card debt from Quarter 3 of 2013 (Q3 2013) to Quarter 2 of 2015 (Q2 2015)?	

Question 5	Answer
What was the percent increase in US credit card debt from Quarter 4 of 2008 (Q4 2008) to Quarter 4 of 2018 (Q4 2018)?	

Part III: Reflection

6. After using the percent change formula, how can you tell if your answer represents a percent increase or a percent decrease?

7. Refer back to your answer for Question #5.
    a. Why might this answer not paint a full picture of what happened between Q4 2008 and Q4 2018?

    b. Why is this important to take into account when using data to help you make financial decisions?