



STUDENT _____

GROUP _____

INSTRUCTOR _____

DATE _____

Math Lab Lesson #2 Classwork:

Percent Change

WHAT TO DO:

- Watch the video and take notes on this Classwork sheet
- Pause and repeat any parts of the video that you want to review again. It's not a race!
- Answer any questions embedded in the video
- After watching the video, complete the Practice Problems.
- Create one or two flashcards that relate to what you learned from the video and the Practice Problems.
- Then, go to the next video and repeat!

★ Video: Two Ways to Calculate Percent Change

Percent Change Formula

★ Example: A week ago, Theo could recognize 15 words, like “mom,” “dad,” and “dog” (referring to Gnarly the dog, of course). Now, he can recognize 24 words. By what percent has the number of words Theo can recognize increased?



➔ **Practice Problems: Two Ways to Calculate Percent Change**

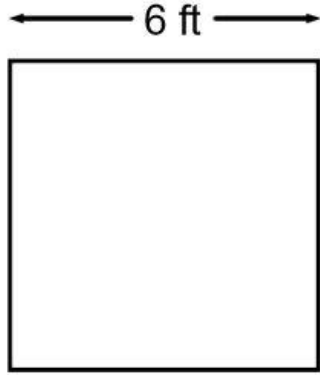
1. Zaraida could do 30 sit-ups in a row without stopping. Now she can do 45 sit-ups in a row without stopping. By what percent has the number of sit-ups Zaraida can do in a row increased?

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2. When he was younger, Abou used to be able to sleep for 9 hours every night. Now, he sleeps for 7.5 hours every night. By what percent has the number of hours that Abou sleeps at night decreased?

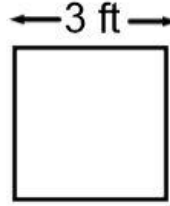
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3. The population in Kim's neighborhood has been increasing rapidly. In fact, the population tripled in size over the past 20 years. By what percent has the population increased over the past 20 years?



4. A square is shrinking. Yesterday, the side length of the square used to be 6 feet long, but now it is 3 feet long.



Yesterday



Today

Tomorrow

- a) By what percent has the area of the square decreased?



- b) The side length of the square is half as long as it is today. Draw tomorrow's square

- c) By what percent will the area of the square have decreased over these three days?

STOP: DID YOU MAKE YOUR FLASHCARDS





★ Video: Practice with Percent Change

★ **Example:** Xavier usually earns \$40.85 per hour working as a high school math teacher. He just found out that he is going to get a 4% raise since his students really understand fractions. What is his new salary?

★ **Example:** Danayvia is buying a pre-calculus textbook online. There is a sale, and the book is 35% off of the original price, P . The sale price is \$52.



What was the original price?

★ **Example:** Fatou has a square. She decreases the length of the square by 40% and increase the width by x %, and now she has a rectangle. If the area of the original square and the new rectangle are the same, then what is the value of x ?



➔ **Practice Problems: Name**

1. In 2007, the average price for a gallon of gas was about \$3.15. By 2016, the average price had decreased by about 30.9% from this price in 2007. What is the average price for a gallon of gas in 2016?
2. Last year, the average price of a round trip plane ticket from New York City to San Francisco was P dollars. The price rose by about 28.57%, and this year the cost of this flight is \$450. What was the average price for this flight last year?
3. In a sale, the prices in a shop were all decreased by 20%. After the sale they were all increased by 25%. What was the overall effect on the shop prices? How do you know?

STOP: DID YOU MAKE YOUR FLASHCARDS?





BOSS LEVEL

1. Look at your answer to #3. The price was decreased by 20%, then increased by 25%. Can you come up with two different percentages **that will result in the same answer?**

2. Do it again. And again. What pattern do you notice?