4-8: Learning Goals

- Let's use equations to represent increases and decreases.

4-8-1: From 100 to 106

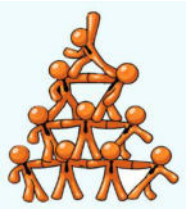
How do you get from one number to the next using multiplication or division?

- From 100 to 106
- From 100 to 90
- From 90 to 100
- From 106 to 100

4-8-2: Interest and Depreciation

1. Money in a particular savings account increases by about 6% after a year. How much money will be in the account after one year if the initial amount is \$100? \$50? \$200? \$125? x dollars? If you get stuck, consider using diagrams or a table to organize your work.

2. The value of a new car decreases by about 15% in the first year. How much will a car be worth after one year if its initial value was \$1,000? \$5,000? \$5,020? x dollars? If you get stuck, consider using diagrams or a table to organize your work.



4-8-3: Matching Equations

Match an equation to each of these situations. Be prepared to share your reasoning.

1. The water level in a reservoir is now 52 meters. If this was a 23% increase, what was the initial depth?

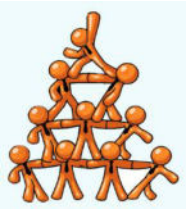
2. The snow is now 52 inches deep. If this was a 77% decrease, what was the initial depth?

$0.23x = 52$

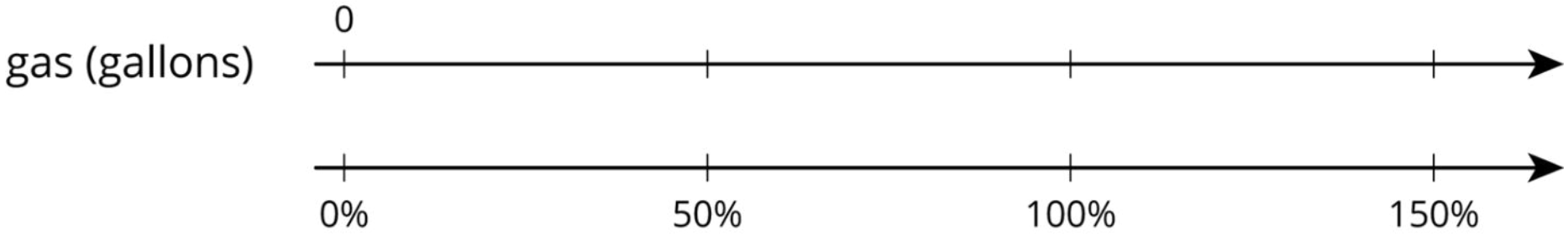
$1.23x = 52$

$0.77x = 52$

$1.77x = 52$

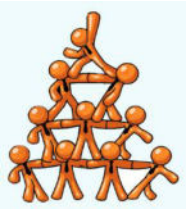


4-8-4: Representing Percent Increase and Decrease: Equations



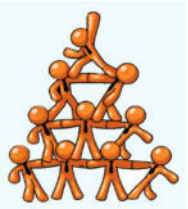
The gas tank in dad's car holds 12 gallons. The gas tank in mom's truck holds 50% more than that. How much gas does the truck's tank hold?

Explain why this situation can be represented by the equation $(1.5) \cdot 12 = t$. Make sure that you explain what t represents.



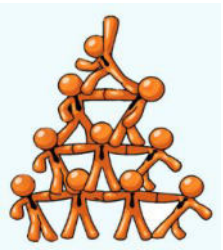
4-8-4: Representing Percent Increase and Decrease: Equations

1. The gas tank in dad's car holds 12 gallons. The gas tank in mom's truck holds 50% more than that. How much gas does the truck's tank hold?
2. Explain why this situation can be represented by the equation $(1.5)\cdot 12=t$. Make sure that you explain what t represents.
3. Write an equation to represent each of the following situations.
    a. A movie theater decreased the size of its popcorn bags by 20%. If the old bags held 15 cups of popcorn, how much do the new bags hold?
    b. After a 25% discount, the price of a T-shirt was $12. What was the price before the discount?
    c. Compared to last year, the population of Boom Town has increased by 25%.The population is now 6,600. What was the population last year?



4-8: Lesson Synthesis

- What are some ways we have learned to solve percent increase or percent decrease problems?
- Which representation do you prefer to use? Why?



4-8: Learning Targets

- I can solve percent increase and decrease problems by writing an equation to represent the situation and solving it.

4-8-5: Tyler's Savings Bond

Tyler's mom purchased a savings bond for Tyler. The value of the savings bond increases by 4% each year. One year after it was purchased, the value of the savings bond was $156. Find the value of the bond when Tyler's mom purchased it. Explain your reasoning.