

## Math 6: Week of April 20th

**New Lesson:** Percent Applications (Problem Solving with Percents)

**Target:** Solve problems involving discounts, tips and tax.

### Directions:

- Go through the slides (notes) and work through the examples on a separate piece of paper. If you have your math notebook, feel free to use it!
- Complete the practice problems on a separate piece of paper. Don't do all the problems at one time. Break them up throughout a day or over the whole week.
- How did you do? Check your answers with the key given at the end of the lesson. If you got one wrong, double check your steps with your notes and recalculate it.
- Are you stuck?
  1. Use Google Classroom or Gmail to ask Mrs. Thomas a question.
  2. Email Mrs Thomas to set up a help session. We now have access to Google Hangouts through Google Classroom called Meets! (YAY!) I can still use Zoom too!

## Example 1

Anna ordered a new vacuum cleaner with an original price of \$98. The vacuum cleaner was on sale for 20% off.

- a. What was the value of the discount?
- b. What was the sale price of the vacuum cleaner?

- a. Write the problem. 20% of 98  
Rewrite as an equation and solve.  $0.2 \times 98 = 19.6$

The value of the discount was \$19.60. (Anna is saving \$19.60)

- b. Subtract discount from price of vacuum  $98.00 - 19.60 = 78.40$

The sale price of the vacuum cleaner was \$78.40.  
(Anna is paying \$78.40 for the vacuum instead of \$98 because it was on sale.)

## Example 2

Bryan went to the mall to buy a new video game. When he got to the store he found there was a sale. The game was originally \$29.99. It had a sticker which read "10% off the original price!" What was the value of the discount?

- Write the problem. 10% of 29.99
- Rewrite as an equation and solve.  $0.1 \times 29.99 = 2.999$
- Round to the nearest cent. \$3.00

(Remember when dealing with money, always round to the nearest hundredth when needed.)

The value of the discount was about \$3.00.

Keywords that can be helpful:  
"Discount" or "off" usually means SUBTRACTION is involved.  
"Sales Tax" or "Tip" usually means ADDITION is involved.

## Example 3

**Sales tax:** An amount *added* to the cost of an item. The amount added is a percent of the original amount as determined by a state, county or city.

Jose traveled to Florida to visit family. While in Florida he bought a t-shirt priced at \$25.00. The sales tax in Florida was 6%.

- a. How much was the sales tax?
- b. What was the total amount he paid for the shirt?

- a. Write the problem. 6% of \$25.00  
Rewrite as an equation and solve.  $0.06 \times 25.00 = 1.5$   
Jose will pay \$1.50 in sales tax.

- b. Add sales tax to original price.  $25.00 + 1.50 = 26.50$   
The total amount for the shirt, including tax, was \$26.50.

## Practice Problems

See Worksheet ~ Lesson 15: Percent Applications

Check your work!

Worksheet  
Answers  
Provided Here!

If you're stuck,  
ASK  
Mrs. Thomas!

13. a. \$17.60  
b. \$52.80
14. a. \$3.36
15. a. \$1,440  
b. \$25,440
16. a. \$0.75  
b. \$15.75
17. No, 50% and 25% → \$7.50 75% → \$5.00

### Exercise Answers

1. 35 paninis  
2. 39 cards from his favorite team  
3. 2.4 feet  
4. 24 boys  
5. a. = \$8.99  
b. \$6.00
6. a. \$12.00  
b. \$28.00
7. \$29.85
8. a. \$14.00  
b. \$16.00  
c. \$45.00
9. \$2.25
10. \$9.75
11. a. \$6.74  
b. \$27.60
12. a. \$3.60  
b. \$27.60

## Oregon Focus on Ratios, Rates & Percents Lesson 15 Answers

## Extra Activities! ~ If you have time, give these a try!

### TIC-TAC-TOE ~ SALES TAX



Most states have a sales tax which is applied to non-grocery items. If a state has an 8% sales tax, you pay the cost of the item and an additional 8% of the item's cost.

*Example:* An item costs \$100. An 8% sales tax is added to the item cost. You pay \$108 total.

**Step 1:** Research and list the states in the United States that do not charge sales tax.

**Step 2:** Find the two states which have the highest sales tax.

**Step 3:** Find the two states which have the lowest sales tax greater than zero.

**Step 4:** Suppose you want to buy each of the items listed below. Write each item's total cost (including sales tax) if you purchase it in (1) Oregon, (2) the state with the highest sales tax and (3) the state with the lowest sales tax.

- Laptop computer for \$800
- Used car for \$6,000
- Television for \$1,500

Organize all of your information in a chart.

### TIC-TAC-TOE ~ ENOUGH MONEY?



Tara needs a new purse. She has \$30. She found a purse she wants for \$32. It is on sale for 20% off. She must also pay a 5% sales tax. Does she have enough money to buy the purse?

*Example:*

**Step 1:** Find the discount on the purse →  $0.2 \times 32 = 6.4$

**Step 2:** Find the cost of the purse after the discount is applied →  $32 - 6.4 = 25.6$      \$25.60

**Step 3:** Find the cost of the 5% sales tax →  $0.05 \times 25.60 = 1.28$

**Step 4:** Find the cost of the purse with the sales tax →  $25.60 + 1.28 = 26.88$      \$26.88

Tara has enough money to buy the purse.

Use the steps above to find the cost for each item below when purchased in a state with an 8% sales tax.

1. An \$800 computer on sale for 10% off.
2. A \$300 table on sale for 25% off.
3. A \$42 jacket on sale for 30% off.
4. A DVD was on sale for 50% off. It was later discounted an additional 20% off the sale price. Is this the same as a 70% discount? Explain using complete sentences. Include the example of a DVD with an original price of \$24.

### TIC-TAC-TOE ~ MENU



Find a take-out menu for a local restaurant. Use a menu from the internet or an actual menu from a restaurant. If you use an actual menu, ask the owner for permission to use it on this activity. If using a paper copy of a menu, attach it to your work.

Complete these steps for **Questions 1, 2, 4, 5, and 7.**

**Step 1:** Identify the items on the menu and each price.

**Step 2:** Find the total price for the items on the menu.

**Step 3:** Find the amount of a 15% tip.

**Step 4:** Find the total cost for the meal, including the tip.

1. A beverage, main dish, and dessert.
2. Water with the same main dish and dessert as in #1.
3. Why do you think a waiter offers you a drink when you first sit down?
4. A beverage, an appetizer, and a main dish.
5. The same beverage and main dish as in #3, but no appetizer.
6. Why do you think a waiter offers you an appetizer when you first sit down?
7. You have \$20 to spend for lunch including the tip. Which items can you buy? Identify the items and the total cost, including a tip, for your meal.

## EXERCISES

- Ms. Pearson had a flower garden. In the spring she planted 100 seeds. Of the seeds planted, 35% were pansies. How many pansies did Ms. Pearson plant?
- Nate collects baseball cards. He has a total of 130 cards. Thirty percent of his cards are players from his favorite team. How many baseball cards does Nate have from his favorite team?



- Tabitha planted an evergreen tree in her front yard. It was 12 feet tall. The next year it was 20% taller. How much taller, in feet, was the evergreen tree in Tabitha's yard?
- Mr. Lloyd had 32 students in his 6<sup>th</sup> grade class. Of those students, 75% were boys. How many boys were in Mr. Lloyd's 6<sup>th</sup> grade class?
- A music store in Seaside was going out of business. The sign read "Everything must go! 60% off every item!" Kyron bought a CD there that was originally \$14.99.
  - How much was the discount?
  - How much did Kyron pay for the CD?

- Doreen went to the store to buy a pair of jeans. The jeans she liked best were originally \$40.00. They were on sale for 30% off.
  - How much was the discount on the jeans?
  - What was the sale price for the jeans?
- Carter went to the store to buy a new keyboard. He found last year's model on sale for 15% off the original price, which was \$199.00. How much was the discount on the keyboard?
- Kari went to the mall and found a store having a clearance sale. Everything in the store was 40% off. She purchased a pair of pants that were originally \$35.00 and a jacket that was originally \$40.00.
  - How much was the discount on the pants?
  - How much was the discount on the jacket?
  - What was the total cost of her purchase?



Below are several restaurant bills. Each customer left a 15% tip. Find the amount of money left for each tip. Round to the nearest hundredth, if necessary.

**9.** Total bill: \$15.00

**10.** Total bill: \$65.00

**11.** Total bill: \$44.95

- Mikayla took her friends to lunch. The bill came to \$24. She left a 15% tip.
  - Find the amount of money left for the tip.
  - How much did Mikayla spend on lunch, including the tip?
- The Jackson family went to dinner with the Welton family. The total bill for the meal was \$88. The families decided to leave a 20% tip.
  - Find the amount of money left for the tip.
  - The two families split the cost of the meal and tip equally. How much did each family spend?

- 14.** Michelle visited her sister in California. While there, she bought \$42.00 worth of party supplies for her nephew's birthday. The city where she bought the supplies had an 8% sales tax. Find the amount she spent in sales tax on the birthday supplies.
- 15.** Carla went to Idaho and found a car for \$24,000. If she buys it in Idaho she will be charged an additional 6% sales tax on the price of the car.
- How much sales tax will Carla pay on the car in Idaho?
  - What is the total price, including tax, for the car?
- 16.** Emie went to Washington DC and stayed with friends in Virginia. While there she bought a souvenir book for \$15.00. The sales tax on the book was 5%.
- Find the total amount of sales tax she paid for the souvenir book.
  - Find the total cost of the book, including tax.
- 17.** A \$20 DVD is discounted 50%. It was then discounted an additional 25%. Is this the same as a 75% discount? Explain.

