

Math 7 Notes

Main Idea

Sales Tax, Tip, Discount, Commission, Percent Error, and Percent Change

All of these can be solved by setting up a proportion or use the short cut method described in the notes!!!!

Sales Tax

Sales Tax is an additional amount of money added to the total bill of things that people buy.

$$\text{Original Cost} + \text{Tax} = \text{Total Cost}$$

Tip

A tip or gratuity is a small amount of money given in return for a service.

$$\text{Original Cost} + \text{Tip} = \text{Total Cost}$$

Discount

Discount is the amount by which the regular price of an item is reduced.

$$\text{Original Cost} - \text{Discount} = \text{Sale}$$

Commission

Commission is the amount of money earned by a person based on the actual amount sold.

$$\text{Total Sales} \times \text{Rate} = \text{Commission}$$

Percent Error

Percent Error is the difference between the estimated value and the actual value divided by the actual value. (Use absolute values if your difference is negative)

$$\frac{(\text{Estimated Amount} - \text{Actual Amount})}{\text{Actual Value}}$$

****Remember to write your final answer in percent format****

Percent of Change

Percent of Change is the increase or decrease of a change in amount (new value – original value) divided by the original amount. (Use absolute values if your difference is negative)

$$\frac{(\text{New Value} - \text{Original Value})}{\text{Original Value}}$$

****Remember to write your final answer in percent format...Move your decimal!!!**

Tip

Example

If the bill for dinner at Frost Café is \$20.55, what is the total bill with a 15% tip?

Steps:

1) Figure out tip amount.

- a. Turn the percent into a usable decimal. Ex: 15% becomes .15. (Move the decimal two places to the left.
- b. Multiply the dinner amount, \$20.55 by the percent as a decimal, .15.
 - i. $20.55 \times .15 = 3.0825$
 - ii. Turn 3.0825 into a dollar amount by rounding to the hundredths place. Ex: 3.0825 becomes \$3.08.

2) Add the tip to the dinner amount.

- a. $\$3.08 + \$20.55 = \text{Total Bill}$
- b. \$23.63 is the Total Bill including tip.

You Try (Follow the steps in the notes):

1) Your family had dinner at BBQ West, the total dinner amount was \$65. You leave a 15% tip for the waitress. (Show your work)

a) What is the tip amount?

b) What is the total bill amount?

2) You bought lunch for you and your friend for \$22.45. You plan to leave a 20% tip for outstanding service. (Show your work)

a) What is the tip amount?

b) What is the total bill amount?

Sales Tax

Example

If the bill for dinner at Frost Café is \$20.55, what is the total bill with a 7.5% sales tax rate?

Steps:

1) Figure out the sales tax amount.

- a. Turn the percent into a usable decimal. Ex: 7.5% becomes .075 (Move the decimal two places to the left.
- b. Multiply the dinner amount, \$20.55 by the percent as a decimal, .075
 - i. $20.55 \times .075 = 1.54125$
 - ii. Turn 1.54125 into a dollar amount by rounding to the hundredths place. Ex: 1.54125 becomes \$1.54.

2) Add the sales tax to the dinner amount.

- a. $\$1.54 + \$20.55 = \text{Total Bill}$
- b. \$22.09 is the Total Bill including sales tax.

You Try (Follow the steps in the notes):

1) Your family had dinner at BBQ West. The dinner special for four costs \$65, plus 10% for sales tax. (Show your work)

a) What is the sales tax amount?

b) What is the total bill amount?

2) You bought lunch for you and your friend. Lunch came to \$22.45 and the sales tax rate was 9.5%. (Show your work)

a) What is the sales tax amount?

b) What is the total bill amount?

Discount

Example

If the price of a book is \$20.55 and you have a 5% discount card, what is the sale price of the book?

Steps:

1) Figure out discount amount.

- a. Turn the percent into a usable decimal. Ex: 5% becomes .05 (Move the decimal two places to the left.
- b. Multiply the dinner amount, \$20.55 by the percent as a decimal, .05
 - i. $20.55 \times .05 = 1.0275$
 - ii. Turn 1.0275 into a dollar amount by rounding to the hundredths place. Ex: 1.0275 becomes \$1.03.

2) Figure out Sale Price. Subtract the discount amount from the price.

- a. $\$20.55 - \$1.03 = \text{Sale Price}$
- b. \$19.52 is the Sale Price after discount.

You Try (Follow the steps in the notes):

1) Your parents bought a new TV that cost \$1,500. Your dad used a 15% off coupon. (Show your work)

a) What is the discount amount?

b) What is the sale price of the TV?

2) You want to buy airpods that cost \$249.00 on Amazon. You have a discount code to take 20% off the price. (Show your work)

c) What is the discount amount?

d) What is the sale price of the airpods?

Commission

Example

A salesperson receives 20% commission on the total sales they make in a year at Car City. How much commission would they make with \$210,000 in total sales?

Figure out commission amount

Steps:

- 1) Turn the percent into a usable decimal. Ex: 20% becomes .20 (Move the decimal two places to the left.

- 2) Multiply the total sales amount, \$210,000 by the percent as a decimal, .20
 - a) $210,000 \times .20 = 42,000$
 - b) Turn 42,000 into a dollar amount by adding a dollar sign. Ex: 42,000 becomes \$42,000.

You Try (Follow the steps in the notes):

- 1) **June sells furniture. She gets 5% commission on all sales she makes each month. Last month she sold \$1,700 in total sales. How much will June receive as commission? (Show your work)**

- 2) **Kramer sells houses. He receives 6% commission on each sale. If Kramer sells a house for \$165,000, how much commission will he receive?**

- 3) **Sofia works at Cowboy Corner. She receives 10% commission on all of the cowboy hats she sells in a month. If Sofia sells \$545 in total sales, what is her commission?**

Percent Error

Example

Maggie predicted 100 people would come to the school dance. When she counted the tickets sold, she realized 175 people were actually attending. What is the percent of error?

Steps:

1) Find the difference between actual and the estimated amounts.

a. (175 people are actually attending) – (100 people were predicted to attend)

b. $175 - 100 = 75$ (difference)

2) Find the percent of error.

Set up a proportion

$$\frac{\text{difference}}{\text{actual}} = \frac{x}{100}$$

You Try (Follow the steps in the notes):

- 1) Valerie estimated she would need 7 feet of ribbon to complete her cheer bows. When she completed them, she used an actual amount of 12 feet. What is her percent of error? (Show your work)**
- 2) Damian estimated he would need \$150 for new basketball shoes. When he checked out, the actual total for his shoes was \$110. What is his percent of error? (Show your work)**
- 3) Brianna actually paid \$88 for a phone case. She only estimated the case would cost \$50. What is her percent of error? (Show your work)**

Percent of Change (Increase or Decrease)

Example

500 people attended the 1st school play in December. In May, only 366 attended the 2nd performance. What is the percent of decrease in attendance?

Steps:

1) Find the difference between the original and new amount.

a. (500 people at 1st play) – (366 people at 2nd play)

b. $500 - 366 = 134$ (difference)

2) Find the percent of change.

Set up a proportion

$$\frac{\text{difference}}{\text{(original amount)}} = \frac{x}{100}$$

(Beginning amount)
(Or old amount)

You Try (Follow the steps in the notes):

1) Last year, there were 900 students at Happy Town Middle School. This year, there are 1,200 students. (Show your work)

a. What is the percent of change?

b. Is the change an increase or a decrease?

2) When Tim was 5, he got 20 birthday gifts. When Tim was 13, he got 6 birthday gifts. (Show your work)

a. What is the percent of change?

b. Is the change an increase or a decrease?