

3-12-19

Aim: SWBAT review.

HW: Test Tomorrow

Do Now: Check hw

Aim: SWBAT find the percent of change and the percent of error.

Do Now: Suzanne bought a sweater at the sale price of \$25. The original cost of the sweater was \$40. What percent represents the discount that Suzanne received when buying the sweater?

$$40 - 25 = 15$$

$$\frac{15}{40} = \frac{x}{100}$$

$$\frac{25}{40} = \frac{x}{100}$$

$$x = 62.5$$

← the amount of the retail price that you're paying for

$$100\% - 62.5\% = 37.5\%$$

sale for

- A. 15% **B. 37.5%** C. 60% D. 62.5%

Finding the Percent of Change

$$\frac{\text{Amt. of Change}}{\text{Original Amt.}} = \frac{r}{100}$$

Tell whether the percent change is an increase or decrease. Then, find the percent of change. Round your answer to the nearest hundredth.

	A	B
1	<p>\$36,000 to \$40,000</p> $40000 - 36000 = 4000$ $\frac{4000}{36000} = \frac{x}{100}$ $\frac{36000x}{36000} = \frac{400000}{36000}$ $x = 11.111...$ $x \approx 11.11$	<p>10 miles to 36 miles</p> $36 - 10 = 26$ amt. of increase $\frac{26}{10} = \frac{x}{100}$ $\frac{10x}{10} = \frac{2600}{10}$ $x = 260$
2	<p>5.42 minutes to 5.2 minutes</p> $5.42 - 5.2 = 0.22$ amt. of decrease $\frac{0.22}{5.42} = \frac{x}{100}$ $x \approx 4.06$	<p>64 teams to 4 teams</p> $64 - 4 = 60$ $\frac{60}{64} = \frac{x}{100}$ $\frac{64x}{64} = \frac{6000}{64}$ $x = 93.75$
3	<p>89 members to 120 members</p> $120 - 89 = 31$ $\frac{31}{89} = \frac{x}{100}$ <p style="text-align: right;">increase</p>	<p>500 sales to 380 sales</p> $500 - 380 = 120$ $\frac{120}{500} = \frac{x}{100}$ $\frac{500x}{500} = \frac{12000}{500}$ $x = 24$

$$\frac{89x}{89} = \frac{3100}{89}$$

$$x = 34.8314...$$

$$x \approx 34.83$$

24% decrease

Finding the Percent Error

$$\frac{\text{Amt. of Error}}{\text{Actual Amt.}} = \frac{r}{100}$$

The percent error is the result of translating the amount of inaccuracy into a percent.

4. Suppose you guess that there are 300 gumballs in a jar, but there are actually 400 gumballs in the jar. What is your percent error?

$$400 - 300 = 100$$

amt. of
error

$$\frac{100}{400} = \frac{x}{100}$$

$$\frac{400x}{400} = \frac{10000}{400}$$

$$x = 25$$

I was 25% off.

5. Joshua uses his thermometer and finds that the boiling point of ethyl alcohol is 75°C. He looks in a reference book and finds that the actual boiling point of ethyl alcohol is 80°C. What is his percent error?

6. A bridge project was predicted to take 3 years to complete, but due to unforeseen events, it actually took 5 years to complete. What was the percent error?

$$5 - 3 = 2$$

$$\frac{2}{5} = \frac{x}{100}$$

$$\frac{5x}{5} = \frac{200}{5}$$

$$x = 40$$

7. The meteorologist said that there would be 5 inches of snow as a result of the storm. Only 3 inches of snow actually accumulated. What was the percent error?

$$5 - 3 = 2$$

$$\frac{2}{3} = \frac{x}{100}$$

$$\frac{3x}{3} = \frac{200}{3}$$

$$x = 66.\bar{6}$$

Review

1. Andrew purchased a barbeque. He saved \$39 off the regular price of \$195. What percent of the regular price did he save?

$$\frac{39}{195} = \frac{x}{100}$$

2. Jenny earns 30% commission on all the items she sells. If she sells \$870 worth of items, how much commission did she earn?

$$\frac{x}{870} = \frac{30}{100}$$

- * 3. The cost, including a 6.75% sales tax, of a home theater system is \$2668.75. What is the original cost of the home theater system?

$$100\% + 6.75\% = 106.75\%$$

$$\frac{2668.75}{x} = \frac{106.75}{100}$$

4. A car salesman earns 17% commission on all sales. If he sold a car and earned \$3327.75 in commission, what was the price of the car that he sold?

$$\frac{3327.75}{x} = \frac{17}{100}$$

5. A new puppy weighs 8 pounds. At one year old, her weight is 60 pounds. What is the percent increase in the puppy's weight?

$$60 - 8 = 52 \text{ increase}$$

$$\frac{52}{8} = \frac{x}{100}$$

Review

1. Andrew purchased a barbeque. He saved \$39 off the regular price of \$195. What percent of the regular price did he save?

$$\frac{39}{195} = \frac{x}{100}$$

$$\frac{195x}{195} = \frac{3900}{195}$$

$$x = 20$$

He saved 20%.

2. Jenny earns 30% commission on all the items she sells. If she sells \$870 worth of items, how much commission did she earn?

$$\frac{x}{870} = \frac{30}{100}$$

$$\frac{100x}{100} = \frac{26100}{100}$$

$$x = 261$$

She earned \$261.

3. The cost, including a 6.75% sales tax, of a home theater system is \$2668.75. What is the original cost of the home theater system?

$$20\% + 6.75\% = 106.75\%$$

$$\frac{2668.75}{x} = \frac{106.75}{100}$$

$$\frac{106.75x}{106.75} = \frac{266875}{106.75}$$

$$x = 2500$$

The original cost was \$2500.

4. A car salesman earns 17% commission on all sales. If he sold a car and earned \$3327.75 in commission, what was the price of the car that he sold?

$$\frac{3327.75}{x} = \frac{17}{100}$$

$$\frac{17x}{17} = \frac{332775}{17}$$

$$x = 19575$$

The car was sold for \$19,575.

5. A new puppy weighs 8 pounds. At one year old, her weight is 60 pounds. What is the percent increase in the puppy's weight?

$$60 - 8 = 52$$

$$\frac{52}{8} = \frac{x}{100}$$

original

$$\frac{8x}{8} = \frac{5200}{8}$$

$$x = 650$$

The percent increase is 650%.

Review

6. Chris estimates that it will take him 30 minutes to complete his homework. But, it only takes him 25 minutes to complete his homework. What is the percent error in his estimate?

$$30 - 25 = 5 \text{ amt. of error}$$

$$\frac{5}{25} = \frac{x}{100}$$

↑
actual

7. The number of students in the math club increased from 20 to 26? What was the percent of increase?

$$26 - 20 = 6 \text{ increase}$$

$$\frac{6}{20} = \frac{x}{100}$$

↑
original

8. The planners of a carnival estimate that they will sell 500 hotdogs. They only sell 400. What is the percent error in their estimate?

$$500 - 400 = 100$$

$$\frac{100}{400} = \frac{x}{100}$$

↑
actual

9. A television regularly sells for \$699. There is a 10% discount and an 8.5% sales tax based on the sale price. What is the final price of the television?

$$\frac{x}{699} = \frac{10}{100}$$

$$\frac{y}{629.10} = \frac{8.5}{100}$$

$$x = 69.90 \text{ amt. of discount}$$

$$\frac{100y}{100} = \frac{5347.35}{100}$$

$$y = 53.4735$$

$$\$699 - \$69.90 = \$629.10$$

$$\$629.10 + \$53.4735$$

$$\$682.5735$$

$$\boxed{\$682.57}$$

Review

6. Chris estimates that it will take him 30 minutes to complete his homework. But, it only takes him 25 minutes to complete his homework. What is the percent error in his estimate?

$$30 - 25 = 5$$

$$\frac{5}{25} = \frac{x}{100}$$

↑
actual

$$\frac{20x = 500}{25 \quad 25}$$

$$x = 20$$

His error was 20%

7. The number of students in the math club increased from 20 to 26? What was the percent of increase?

$$26 - 20 = 6$$

$$\frac{6}{20} = \frac{x}{100}$$

↑
original

$$\frac{30x = 600}{20 \quad 20}$$

$$x = 30$$

The number of math club students increased by 30%.

8. The planners of a carnival estimate that they will sell 500 hotdogs. They only sell 400. What is the percent error in their estimate?

$$500 - 400 = 100$$

$$\frac{100}{400} = \frac{x}{100}$$

↑
actual

$$\frac{400x = 10000}{400 \quad 400}$$

$$x = 25$$

The estimate was 25% off.

9. A television regularly sells for \$699. There is a 10% discount and an 8.5% sales tax based on the sale price. What is the final price of the television?

$$\frac{x}{699} = \frac{10}{100}$$

$$\frac{100x = 6990}{100 \quad 100}$$

$$x = \$69.90 \leftarrow \text{amt. of discount}$$

$$\$699 - \$69.90 = \$629.10$$

$$\frac{y}{629.10} = \frac{8.5}{100}$$

$$\frac{100y = 5347.35}{100 \quad 100}$$

$$y = 53.4735 \leftarrow \text{tax}$$

$$\$629.10 + \$53.4735 = \$682.57$$

The final price was \$682.57.