I can... interpret and use proportions to solve a problem.

Percent Change

A ratio that compares two values

Percent Increase

going up
mark ups
taxes

Percent Decrease

going down
discounts
Sale items

The **Change** the difference in the new price and the original price.
Ask if it is going up/down. Then write Increase _____ % or Decrease _____%.

You can start with the larger number when calculating the change and this way you always get a positive number. (We like positive numbers)

Original Price − New Price = Change OR New Price − Original Price = Change

Once you know the change, put the information you KNOW into this proportion.

$$\frac{\text{Change}}{\text{Original}} = \frac{\%}{100}$$

This is usually where we put the x since we don't know the percent!

1. **Determine whether the percent of change is a percent of *increase* or a percent of *decrease*. Then find the percent of change.**

Increase 25 %

original: 32

new: 40

Change = 8

$$\frac{\text{chg}}{\text{orig}} = \frac{\%}{100}$$

$$100 \cdot \frac{8}{32} = \frac{x}{100} \cdot 100$$

$$25 = x$$

2. **Determine whether the percent of change is a percent of *increase* or a percent of *decrease*. Then find the percent of change.**

Decrease 80%

original: 20

new: 4

chg = 16

$\frac{chg}{orig} = \frac{\%}{100}$

$\frac{100}{1} \cdot \frac{16}{20} = \frac{x}{100} \cdot 100$

$80 = x$

You Try!

Determine whether the percent of change is a percent of *increase* or a percent of *decrease*. Then find the percent of change.

3. original: 20

new: 18

4. original: 12

new: 48

Sales Tax VS Discount

Step 1 Find the tax or discount.

5% ⇒ .05

(What is 5% of $32.75?) Multiply 32.75 by .05

Convert to decimal → ÷ 100

Multiply .05(32.75) = 1.6375 ≈ $1.64 ←

Step 2 Find the cost with tax or discount.

Add 5% tax on to the price! 32.75 + 1.64 = $34.39

OR

Subtract 5% discount from the price! 32.75 − 1.64 = 31.11

7. **SALES TAX** **A meal for two at a restaurant costs $32.75. If the sales tax is 5%, what is the total price of the meal?**

1. 32.75(.05) = $1.64

2. 32.75 + 1.64 = $34.39

The cost of meal is $34.39.

8. **DISCOUNT** **A dog toy is on sale for 20% off the original price. If the original price of the toy is $3.80, what is the discounted price?**

20% = 20/100 = .20
Multiply the Sale percent(as decimal) by total price.
0.20(3.8)=.76 0.76 is the DISCOUNT so we subtract this from the original price
$3.80 - 0.76 = $3.04

The dog toy will cost $3.04.

9. **A portable CD player costs $69.99. If the sales tax is 6.75%, what is the total price of the CD player?**

The cost with tax is $74.71.

10. **A baseball cap is on sale for 15% off the original price which is $19.99. We then have a sales tax of 5.5%. What is the final price of the cap.**

1. Find the discount by multiplying the discount (as decimal) by the price.
   0.15(19.99)=2.998 - this is money so round to nearest penny $3.00
2. Subtract the discount.
   19.99 - 3.00 = 16.99
3. Find the tax on the discounted price. Tax is 5.5% = 5.5/100 = .055
   0.055(16.99) = 0.93445 - this is money so round to nearest penny 0.93
4. Add the tax to the discounted price.
   16.99 + 0.93 = 17.92

The final price of the hat is $17.92.

Homework 2.7

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