

## 4-5 Percent of Change

Percent of Change Formula: 
$$\frac{\text{amount of change}}{\text{original}} = \frac{\%}{100}$$
 (Amount of change = Bigger minus Smaller)

State whether each percent of change is a percent of increase or a percent of decrease. Then find the percent of increase or decrease. Round to the nearest whole percent.

Ex. 1: ORIGINAL: 110  
NEW: 80

This is a percent of **decrease** because the new amount is less than the original amount.

Find the amount of change (use formula above)  $110 - 80 = 30$

State the amount of change and the original amount

Amount of change = 30  
Original = 110  
% = x

Fill in the percent of change formula 
$$\frac{30}{110} = \frac{x}{100}$$

Cross Multiply and solve. 
$$30(100) = 110(x)$$

$$\frac{3000}{110} = \frac{110x}{110}$$

The result is a repeating decimal  $27.2727... = x$   
Per the directions, round to the nearest whole percent.  $\approx 27\%$

The final answer is **D;  $\approx 27\%$**

Discount: 
$$\frac{(\text{Item} - x)}{\text{Item}} = \frac{\%}{100}$$
 Tax: 
$$\frac{(x - \text{Item})}{\text{Item}} = \frac{\%}{100}$$

Find the amount to pay in each situation.

Ex. 2: Homecoming Dress: \$170.00  
Tax: 7.5%

This is a tax problem. Use the tax formula.

Cross Multiply and solve.

$$\frac{x - 170}{170} = \frac{7.5}{100}$$

$$100(x - 170) = 7.5(170)$$

$$100x - 17000 = 1275$$

$$+ 17000 \quad + 17000$$

$$\frac{100x}{100} = \frac{18275}{100}$$

$$x = 182.75$$

**The final amount to pay is \$182.75**

This is a reasonable answer because if you add tax, the amount to pay should be more than the item.