

Date: _____

4.4 Combining Percents

"when can you add percents or multiply percents"

What are PST and GST?

PST: Provincial Sales Tax.

GST: Goods and services tax.

What is HST?

Harmonized Sales Tax.

The rates of taxes in British Columbia were:

GST: 5%

PST: 7%

HST: 12%

Example:

A Coach Purse costs \$250. If there is 7% PST and 5% GST, what is the cost of the ~~jacket~~ purse after taxes?

Method 1: Finding the taxes separately

$$\underline{\text{PST}} \quad \frac{7}{100} \times 250 = 17.50$$

$$\underline{\text{GST}} \quad \frac{5}{100} \times 250 = 12.50$$

$$\text{total} = 17.50 + 12.50 + 250 = \underline{\underline{280}}$$

Method 2: Combining the percents together

These are % of the same number

$$\frac{12}{100} \times 250 = 30$$

* We can add % together.

$$\text{total} = 250 + 30 = \$280$$

Is there any other method?

This is like having a 12% increase.

GST 5% of 250

PST 7% of 250

$$\frac{112\%}{100} \times 250 = \$280$$

original price.

100% of 250

Summary:

When can you add percents together?

when they are % of the same number

eg 5% of 250

7% of 250

* you can also subtract percents when there is discounts or decreases.

Example:

Weeble Wobbles have a retail value of \$80. They are tagged as being 20% off. Today, as part of a one day promotion, everything is reduced by 10% of the sale price. Find the final sale price.

20% of retail value
10% of sale price.

$$\textcircled{1} \quad \frac{20}{100} \times 80 = 16$$
$$\text{sale price} = 80 - 16 = 64$$

$$\textcircled{2} \quad \frac{10}{100} \times 64 = 6.40$$

$$\text{final price} = 64 - 6.40 = \boxed{57.60}$$

$$\text{sale price} = \underline{80\% \text{ of retail.}}$$

$$\text{final price} = 90\% \text{ of } \underline{\text{sale price.}}$$

$$\text{final price} = 90\% \text{ of } \underline{80\% \text{ of retail}}$$

$$= \frac{90}{100} \times \frac{80}{100} \times 80$$

$$= 57.60$$

Fran finds Weeble Wobbles on sale at another store. They have the same retail price, but are on sale for 30% off. Is this a better price?

$$\text{sale price} = 70\% \text{ of } 80$$

$$= \frac{70}{100} \times 80$$

$$= \$56$$

this is a better price.

Why is a 20% discount followed by a 10% discount NOT the same as a 30% discount?

a 20% discount followed 10% can not be added because they are not percents of the same number

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