

## **TOPIC: PERCENT PROBLEM SOLVING**

### **Translating Percent Problems**

- ◆ Recall: A **percent** is a part per 100 which can be written as a fraction (ratio) or decimal.

$$10\% = \frac{10}{100} =$$

- When solving problems with percents, *always* convert to \_\_\_\_\_ form.

New

### Translate Percent Problems

**"A number is 10% of 50"**

**Recall**   
*is* → =  
*of* → •

**Partial = Percent as decimal • Whole**

### **EXAMPLE**

Translate & solve the percent problems below.

(A) 4 is 5% of what number?

(B) 35 is what percent of 28?



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### **EXAMPLE**

Translate & solve the percent problem below.

(A) A number is 50% of 18

(B) A number is 18% of 50

(C) Why are part (A) and (B) related?

### **EXAMPLE**

Caroline earns \$3452 a month. She pays \$1140 each month in rent. How much of her monthly paycheck goes towards rent?

### **PRACTICE**

Translate and solve the percent problems below.

(A) Saphia's lunch bill was \$17.65. She wants to leave an 18% tip. How much should the tip be?

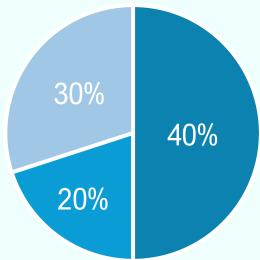
(B) Carson brought some new sneaker on sale for \$250. The sale price was 65% of the original price. What was the original price?

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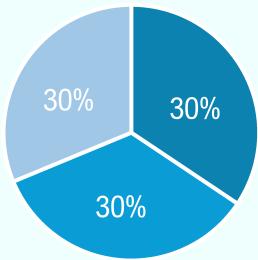
### **EXAMPLE**

Evaluate the percentages in each pie graph and tell whether they are correct or incorrect?

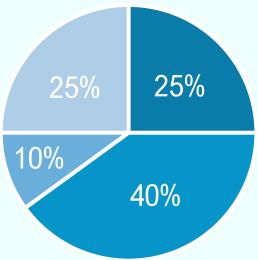
**(A)**



**(B)**



**(C)**



### **EXAMPLE**

The circle graph below shows the world population by continent. Use this graph to answer the questions below.

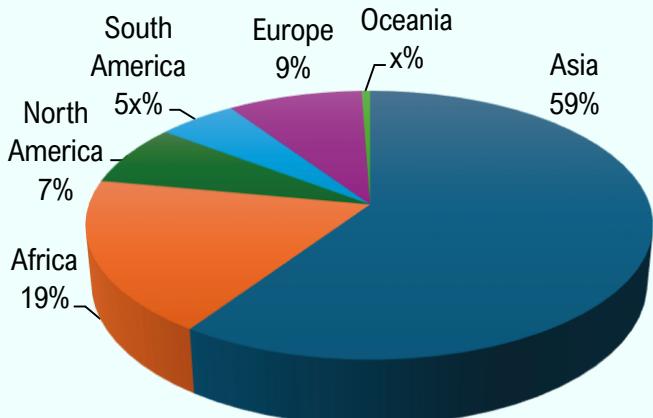
**(A)** What percent of people do not live in Asia?

**(B)** If the total world population is 8.142 billion people, how many people live in Africa?

**(C)** What percent of the world population lives in Oceania?

**(D)** What percent of the world population lives in South America?

**Population by Continent**



## **TOPIC: PERCENT PROBLEM SOLVING**

### **PRACTICE**

Solve the word problems below.

(A) If sales tax on a \$36 pair of shoes is \$1.26, find the sales tax on a \$250 pair of shoes.

(B) Suppose the local sales tax rate is 6.5% and you buy a car for \$12,500. What is the car's total cost?

*Hint: Find how much tax is due first.*

### **EXAMPLE**

Laundry detergent costs \$6.49 a pack. You have a coupon that gets you \$1 off each pack if you purchase 3 packs. If sales tax is 7.5% how much will you be charged for purchasing 3 packs of laundry detergent using the coupon?

## **TOPIC: PERCENT PROBLEM SOLVING**

### **Percent Change**

- ◆ **Percent Change** is the \_\_\_\_\_ between two values measured as a percent of the \_\_\_\_\_ value.
- If the change is [ **POSITIVE** | **NEGATIVE** ], then we call it a percent [ **INCREASE** | **DECREASE** ].

### **EXAMPLE**

If the price of an item was \$50 and is now \$60, find the percent change in price.

<b>New</b>	<b>Percent Change</b>
<p>New Price: _____      Original Price: _____</p> <p>Change in Price: = _____ = _____ = _____</p> <p>Percent [ <b>INCREASE</b>   <b>DECREASE</b> ]: _____</p>	<p><b>Recall</b></p> $\text{percent} = \frac{\text{partial amount}}{\text{whole amount}}$  $\text{percent change} = \frac{\text{amount}}{\text{amount}}$

### **EXAMPLE**

Due to illness the rabbit population in New Zealand changed from 12,000 in 2022 to 8,000 in 2023. Find the percent change in population.

New Population: \_\_\_\_\_      Original Population: \_\_\_\_\_      Change in Population: \_\_\_\_\_

Percent [ **INCREASE** | **DECREASE** ]: \_\_\_\_\_

## **TOPIC: PERCENT PROBLEM SOLVING**

### **PRACTICE**

Find the percent increase/decrease.

(A) A city's population grew from 120,000 to 138,000 people in one year. What is the percent increase in population?

(B) A smartphone originally costs \$800 but is now sold for \$680. Determine the percent decrease in price.

### **PRACTICE**

Find the amount increase/decrease.

(A) Last season, a farmer harvested 500 kg of rice. Due to improved techniques, the harvest is estimated to increase by 20% this season. How much rice is the farmer looking to harvest this season?

(B) A reservoir's water level decreased by 20% over the summer due to evaporation. If the water level is currently at 120 million liters, how much water was there initially?

### **PRACTICE**

A square garden has sides of 8 ft. The gardener reduces each side by 1 ft to make space for a pathway. What is the percent decrease in the perimeter of the garden?