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.

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

▶ 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?

Nothing   Part of Whole   Whole   More than Whole

0%   20%   40%   60%   80%   100%   120%   140%   160%

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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?

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

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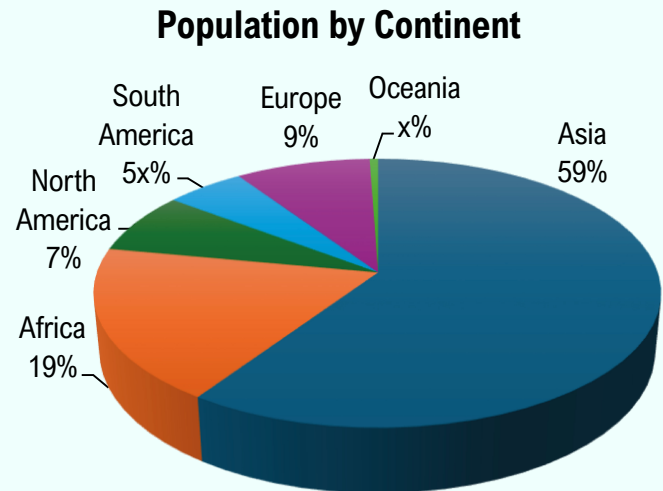
(B) Carson brought some new sneaker on sale for $250. The sale price was 65% of the original price. What was the original price?

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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

South America 5x%

North America 7%

Europe 9%

Oceania x%

Asia 59%

Africa 19%

TOPIC: PERCENT PROBLEM SOLVING

(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.

New   **Percent Change**

New Price: _____   Original Price: _____

Change in Price: = _____ = _____ = _____

Recall

$$percent = \frac{partial\ amount}{whole\ amount}$$

$$percent\ change = \frac{amount}{amount}$$

Percent **[INCREASE | DECREASE]**: _____

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]**: _____

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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?