

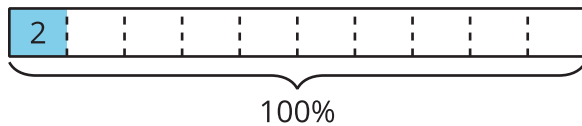
# Benchmark Percentages

Let's contrast percentages and fractions.

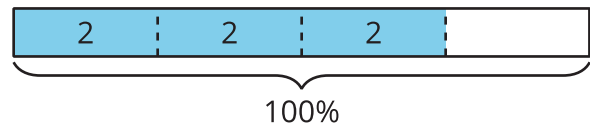
## 23.1 Which Three Go Together: Shaded Diagram

Which three go together? Why do they go together?

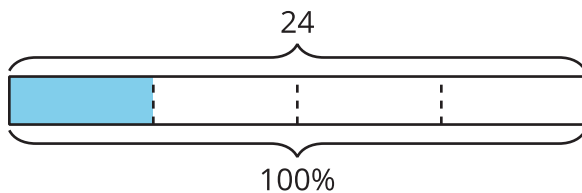
A



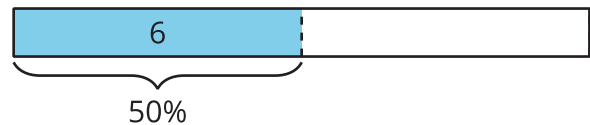
B



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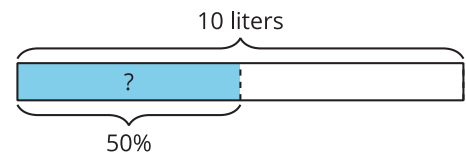


D

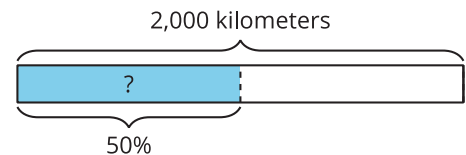


## 23.2 Liters, Meters, and Hours

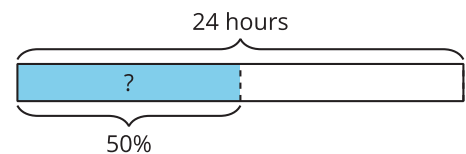
1. a. How much is 50% of 10 liters of milk?



- b. How far is 50% of a 2,000-kilometer trip?



- c. How long is 50% of a 24-hour day?



- d. How can you find 50% of any number?

2. a. How far is 10% of a 2,000-kilometer trip?

- b. How much is 10% of 10 liters of milk?

- c. How long is 10% of a 24-hour day?

- d. How can you find 10% of any number?

3. a. How long is 75% of a 24-hour day?

- b. How far is 75% of a 2,000-kilometer trip?

- c. How much is 75% of 10 liters of milk?

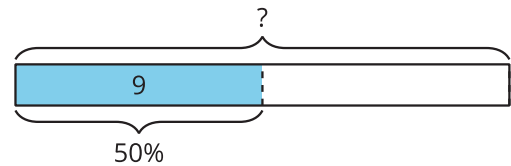
- d. How can you find 75% of any number?

## 23.3

## Nine Is ...

Calculate each value mentally. Be prepared to explain your reasoning.

1. 9 is 50% of what number?



2. 9 is 25% of what number?

3. 9 is 10% of what number?

4. 9 is 75% of what number?

5. 9 is 150% of what number?

## 23.4 Shopping with Coupons

Han and Clare go shopping, and they each have a coupon.

1. Han buys an item with a normal price of \$15, and uses a 10% off coupon. How much does he save by using the coupon? Show your reasoning.



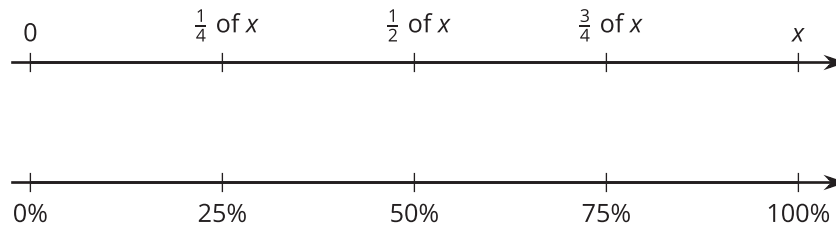
2. Clare buys an item with a normal price of \$24, but saves \$6 by using a coupon. For what percentage off is this coupon? Show your reasoning.

### Are you ready for more?

Clare paid full price for an item. Han bought the same item for 80% of the full price. Clare said, "I can't believe I paid 125% of what you paid, Han!" Is what she said true? Explain your reasoning.

## Lesson 23 Summary

Certain percentages are easy to think about in terms of fractions.



- 25% of a number is always  $\frac{1}{4}$  of that number. For example, 25% of 40 liters is  $\frac{1}{4} \cdot 40$ , or 10 liters.
- 50% of a number is always  $\frac{1}{2}$  of that number. For example, 50% of 82 kilometers is  $\frac{1}{2} \cdot 82$ , or 41 kilometers.
- 75% of a number is always  $\frac{3}{4}$  of that number. For example, 75% of 1 pound is  $\frac{3}{4}$  pound.
- 10% of a number is always  $\frac{1}{10}$  of that number. For example, 10% of 95 meters is 9.5 meters.

We can also find multiples of 10% using tenths. For example, 70% of a number is always  $\frac{7}{10}$  of that number, so 70% of 30 days is  $\frac{7}{10} \cdot 30$ , or 21 days.

