

Using Formulas

R 6-9

A formula is an equation that shows the way quantities relate to one another.

For example:

The formula $0.45p = k$ relates pounds to kilograms. The variable p stands for pounds and the variable k stands for kilograms.

How many kilograms does a 100 lb person measure?

First, substitute the information you know:

$$0.45 p = k$$

$$0.45 (100 \text{ lb}) = k$$

Then, solve the equation to find the answer.

$$0.45 \times 100 = 45 \text{ kg}$$

Use the formula $\text{total cost} = \text{unit price} \times \text{ounces}$ to solve the exercises.

1. Orange juice costs \$0.13 per ounce. How much do 8 oz of orange juice cost? _____
2. Cranberry juice costs \$0.18 per ounce. How much do 6 oz of cranberry juice cost? _____
3. Grape juice costs \$0.25 per ounce. How much do 7 oz of grape juice cost? _____
4. **Estimation** Carrot juice costs \$0.32 per ounce. Durango purchased \$1.92 worth of carrot juice. How many ounces of carrot juice did he purchase? _____

Use the formula $\text{distance} = \text{rate} \times \text{time}$ to solve the problems.

5. A car travels at a rate of 50 mi per hour. How far will the car travel in 4 hr? _____
6. A train travels at a rate of 110 mi per hour. How far will the train travel in 9 hr? _____
7. A truck traveled a total distance of 180 mi. It drove at a rate of 30 mi per hour. For how many hours did the truck travel? _____

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Use the formulas to solve the problems.

Area Conversion

$a = \frac{s}{43.56}$
$s = 43.56 \times a$
$a = \text{acres}$
$s = \text{square feet}$

1. If the area is 5 acres, what is the area in square feet?

2. If the area is 500.94 ft², what is the area in acres?

3. If the area is 1,359.072 ft², what is the area in acres?

4. **Estimation** José says that a quick way to estimate the area in square feet is to multiply the number of acres by 40. Does his method make sense? Is it a good way to estimate?

5. Elise's science teacher had the students count their pulse for 10 seconds. They then used the formula *beats in 10 sec* $\times 6 = \text{beats per minute}$. If Elise counted 12 beats in 10 sec, how many beats would she have in 1 minute?

Test Prep

6. If there are about 28.35 g in 1 oz, about how many grams are equal to 16 ounces?

A. 0.56 g

B. 1.77 g

C. 453.6 g

D. 4,356 g

7. **Writing in Math** Explain how you would use the data in Exercise 6 to find the number of ounces in a certain number of grams.
