NAME _____ DATE _____ PERIOD _____

Enrich

People of the United States

A national census is taken every ten years. The 2000 census revealed that there were about 280,000,000 people in the United States, and that about 15 out of 100 of these people were 5–14 years old. To find the number of people in the United States that were 5–14 years old, use the ratio of people 5–14 years old and create a proportion.

$$\frac{15}{100} = \frac{n}{280{,}000{,}000}$$

To solve the proportion, find cross products.

$15 \times 280{,}000{,}000 = 4{,}200{,}000{,}000$ and $n \times 100 = 100n$

Then divide: $4{,}200{,}000{,}000 \div 100 = 42{,}000{,}000$.

In 2000, about 42,000,000 people in the United States were 5-14 years old.

Use the approximate ratios in each exercise to create a proportion, given that there were about 280,000,000 people in the United States. Then solve and choose the correct answer from the choices at the right.

1. The United States is a diverse collection of different races and ethnic origins. Asians or Pacific Islanders accounted for about $\frac{4}{100}$ of the population of the United States. About how many people of Asian or Pacific-Island origin lived in the United States? _____

2. African-Americans accounted for about $\frac{3}{25}$ of the population of the United States. About how many African-American people lived in the United States? _____

3. People of Hispanic origin accounted for about $\frac{13}{10}$ of the population of the United States. About how many people of Hispanic origin lived in the United States? _____

4. Caucasian people accounted for about $\frac{3}{4}$ of the population of the United States. About how many people of white or Caucasian origin lived in the United States? _____

5. People of American-Indian or Eskimo origin accounted for about $\frac{9}{1{,}000}$ of the population of the United States. About how many people of American-Indian Eskimo, origin lived in the United States? _____

A. 210,000,000

B. 36,400,000

C. 11,200,000

D. 2,520,000

E. 33,600,000

NAME _____ DATE _____ PERIOD _____

Lesson 6 Reteach

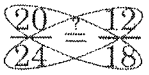
Solve Proportional Relationships

A **proportion** is an equation that states that two ratios are equivalent. To determine whether a pair of ratios forms a proportion, use cross products. You can also use cross products to solve proportions.

Example 1

Determine whether the pair of ratios $\frac{20}{24}$ and $\frac{12}{18}$ form a proportion.

Find the cross products.



$\rightarrow$ $24 \cdot 12 = 288$

$\rightarrow$ $20 \cdot 18 = 360$

Since the cross products are not equal, the ratios do not form a proportion.

Example 2

Solve $\frac{12}{30} = \frac{k}{70}$.

$\frac{12}{30} = \frac{k}{70}$	Write the equation.
$12 \cdot 70 = 30 \cdot k$	Find the cross products.
$840 = 30k$	Multiply.
$\frac{840}{30} = \frac{30k}{30}$	Divide each side by 30.
$28 = k$	Simplify.

The solution is 28.

Exercises

Determine whether each pair of ratios forms a proportion.

1. $\frac{17}{10}, \frac{12}{5}$
2. $\frac{6}{9}, \frac{12}{18}$
3. $\frac{8}{12}, \frac{10}{15}$
4. $\frac{7}{15}, \frac{12}{32}$
5. $\frac{7}{9}, \frac{49}{63}$
6. $\frac{8}{24}, \frac{12}{28}$
7. $\frac{4}{7}, \frac{12}{71}$
8. $\frac{20}{35}, \frac{30}{45}$
9. $\frac{18}{24}, \frac{3}{4}$

Solve each proportion.

10. $\frac{x}{5} = \frac{12}{25}$
11. $\frac{3}{4} = \frac{12}{c}$
12. $\frac{6}{9} = \frac{10}{r}$
13. $\frac{16}{24} = \frac{z}{15}$
14. $\frac{5}{8} = \frac{s}{12}$
15. $\frac{14}{t} = \frac{10}{11}$
16. $\frac{w}{6} = \frac{2.8}{7}$
17. $\frac{5}{y} = \frac{7}{16.8}$
18. $\frac{x}{18} = \frac{7}{36}$