

SECTION

5A

Ready to Go On? Skills Intervention**5-4 Solving Proportions**

To solve a proportion using **cross products**, multiply the numerator of one ratio with the denominator of the other ratio. If the cross products are equal, then the ratios are in proportion.

Vocabulary

cross products

Solving Proportions Using Cross Products

Solve the proportion using cross products.

$$\frac{g}{3} = \frac{15}{9}$$

$$\underline{\quad} \cdot g = 3 \cdot \underline{\quad}$$

Multiply g and _____. Multiply 3 and _____.

$$\underline{\quad} g = \underline{\quad}$$

Simplify both products.

$$\frac{9g}{\underline{\quad}} = \frac{45}{\underline{\quad}}$$

_____ each side by _____ to isolate the variable.

$$g = \underline{\quad}$$

Solve for g .

Problem Solving Application: Measurement

The weight of 3 oranges is 5 pounds. What is the weight of 5 oranges?

1. Understand the problem

What is the question asking? How much do _____ oranges _____?

2. Make a plan

$\frac{5 \text{ pounds}}{\underline{\quad} \text{ oranges}} = \frac{\underline{\quad} w}{\underline{\quad} \text{ oranges}}$ Set up a proportion using the information given.

3. Solve

$$\frac{5}{3} = \frac{w}{5}$$

$$\underline{\quad} \cdot 5 = 3 \cdot \underline{\quad}$$

Multiply cross products.

$$\underline{\quad} = \underline{\quad} w$$

Multiply.

$$\frac{25}{\underline{\quad}} = \frac{3w}{\underline{\quad}}$$

_____ each side by _____ to isolate the variable.

$$8.33 = w$$

Solve for w . Five oranges weigh _____ pounds.

4. Check your answer

The proportion is $\frac{5}{3} = \frac{w}{5}$. Check: $5 \cdot 5 = \underline{\quad}$ and $3 \cdot \underline{\quad} = 25$

Since the ratios have the _____ cross products, the ratios are _____.

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Ready to Go On? Problem Solving Intervention**5-4 Solving Proportions**

You can use estimation and proportional thinking to solve some problems.

The weight of 18 paper clips is 76 grams. The weight of 40 erasers is 187 grams. Which weighs more, 27 paper clips or 20 erasers?

Understand the Problem

1. Does the problem ask for exact weights? What does it ask for?

Make a Plan

2. Let x be the weight of 27 paper clips. Write a proportion you could solve to find x .

3. Let y be the weight of 20 erasers. Write a proportion you could solve to find y .

Solve

4. Do 20 erasers weigh more than or less than 100 g? How can you tell without solving the proportion exactly?

5. Do 27 paper clips weigh more than or less than 100 g? How can you tell without solving the proportion exactly?

6. Which weighs more, 27 paper clips or 20 erasers? Explain.

Check

7. Did you set up your proportions correctly?
