

**Practice**

Form G

**Ratios and Proportions****Write the ratio of the first measurement to the second measurement.**

- diameter of a salad plate: 8 in.                      diameter of a dinner plate: 1 ft  $\frac{2}{3}$
- weight of a cupcake: 2 oz                              weight of a cake: 2 lb 2 oz  $\frac{1}{17}$
- garden container width: 2 ft 6 in.                      garden container length: 8 ft  $\frac{5}{16}$
- width of a canoe: 28 in.                              length of a canoe: 12 ft 6 in.  $\frac{14}{75}$
- height of a book: 11 in.                              height of a bookshelf: 3 ft 3 in.  $\frac{11}{39}$
- The perimeter of a rectangle is 280 cm. The ratio of the width to the length is 3 : 4. What is the length of the rectangle? **80 cm**
- The ratio of country albums to jazz albums in a music collection is 2 : 3. If the music collection has 45 albums, how many are country albums? **18**
- The lengths of the sides of a triangle are in the extended ratio 3 : 6 : 8. The triangle's perimeter is 510 cm. What are the lengths of the sides? **90 cm, 180 cm, 240 cm**

**Algebra Solve each proportion.**

- $\frac{x}{4} = \frac{13}{52}$  **1**
- $\frac{x}{2x+1} = \frac{16}{40}$  **2**
- $\frac{9}{10} = \frac{9x}{70}$  **7**
- $\frac{2}{7} = \frac{b+1}{56}$  **15**
- $\frac{11}{y} = \frac{9}{27}$  **33**
- $\frac{3}{34} = \frac{m}{51}$  **4.5**

**Use the proportion  $\frac{x}{z} = \frac{6}{5}$ . Complete each statement. Justify your answer.**

- $\frac{x}{6} = \frac{\square}{\square}$   **$\frac{z}{5}$ ; Prop. of Proportions (2)**
- $\frac{x+z}{z} = \frac{\square}{\square}$   **$\frac{11}{5}$ ; Prop. of Proportions (3)**
- $\frac{z}{x} = \frac{\square}{\square}$   **$\frac{5}{6}$ ; Prop. of Proportions (1)**
- $5x = \square$   **$6z$ ; Cross Products Property**
- The measures of two consecutive angles in a parallelogram are in the ratio 4 : 11. What are the measures of the four angles of the parallelogram?  
**48, 48, 132, 132**

**Practice** (continued)

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Ratios and Proportions

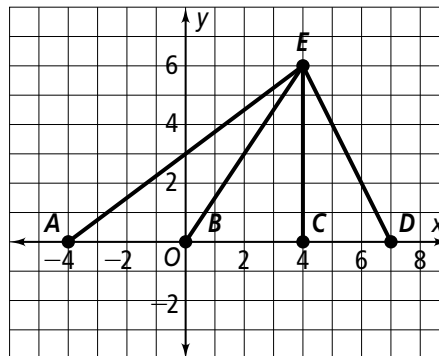
**Coordinate Geometry** Use the graph. Write each ratio in simplest form.

20.  $\frac{AB}{BD} = \frac{4}{7}$

21.  $\frac{AE}{EC} = \frac{5}{3}$

22.  $\frac{EC}{BC} = \frac{3}{2}$

23.  $\frac{\text{slope of } \overline{BE}}{\text{slope of } \overline{AE}} = \frac{2}{1}$  or 2



24. A band director needs to purchase new uniforms. The ratio of small to medium to large uniforms is 3 : 4 : 6.

- a. If there are 260 total uniforms to purchase, how many will be small? **60**
- b. How many of these uniforms will be medium? **80**
- c. How many of these uniforms will be large? **120**

25. The measures of two complementary angles are in the ratio 2 : 3. What is the measure of the smaller angle? **36**

26. The measures of two supplementary angles are in the ratio 4 : 11. What is the measure of the larger angle? **132**

27. The means of a proportion are 4 and 17. List all possible pairs of positive integers that could be the extremes of the proportion. **1 and 68, 2 and 34, 4 and 17**

28. The extremes of a proportion are 5 and 14. List all possible pairs of positive integers that could be the means of the proportion. **1 and 70, 2 and 35, 5 and 14, 7 and 10**

**Algebra** Solve each proportion.

29.  $\frac{(x - 1)}{(x + 1)} = \frac{10}{14}$  **6**

30.  $\frac{7}{50} = \frac{x}{30}$  **4.2**

31. **Writing** Explain why solving proportions is an important skill for solving geometry problems. **Answers may vary. Sample: Many geometric properties involve ratios. You can use proportions to model them and solve problems.**

32. Draw a triangle that satisfies this condition: The ratio of the interior angles is 7 : 11 : 12. **Triangle should have angles that measure 42, 66, and 72.**

