

## Classroom Exercises

1. If  $\frac{e}{f} = \frac{g}{h}$ , which equation is correct?

a.  $ef = gh$

b.  $eh = fg$

c.  $eg = fh$

2. Which proportions are equivalent to  $\frac{x}{12} = \frac{3}{4}$ ?

a.  $\frac{x}{3} = \frac{12}{4}$

b.  $\frac{x}{4} = \frac{12}{3}$

c.  $\frac{12}{x} = \frac{4}{3}$

d.  $\frac{x + 12}{12} = \frac{7}{4}$

Complete the statement.

3. If  $\frac{a}{b} = \frac{2}{3}$ , then  $3a = \underline{\quad? \quad}$ .

4. If  $\frac{c}{d} = \frac{4}{7}$ , then  $\frac{d}{c} = \frac{?}{?}$ .

5. If  $\frac{e}{f} = \frac{5}{9}$ , then  $\frac{e}{5} = \frac{?}{?}$ .

6. If  $\frac{g}{h} = \frac{j}{8}$ , then  $\frac{j}{g} = \frac{?}{?}$ .

7. If  $\frac{k}{m} = \frac{2}{3}$ , then  $\frac{k+m}{m} = \frac{?}{?}$ .

8. If  $\frac{n}{p} = \frac{q}{r} = \frac{7}{9}$ , then  $\frac{n+q+7}{p+r+9} = \frac{?}{?}$ .

9. a. Apply the means-extremes property of proportions to the proportion

$\frac{e}{f} = \frac{g}{5}$  and you get  $5e = \underline{\quad? \quad}$ .

b. Apply the property to the proportion  $\frac{5}{f} = \frac{g}{e}$  and you get  $\underline{\quad? \quad} = \underline{\quad? \quad}$ .

c. Are the proportions  $\frac{e}{f} = \frac{g}{5}$  and  $\frac{5}{f} = \frac{g}{e}$  equivalent? Why?

10. Explain an easy way to show that the proportions  $\frac{x}{7} = \frac{2}{3}$  and  $\frac{x}{2} = \frac{3}{7}$  are not equivalent.

11. Apply the means-extremes property to  $\frac{x}{10} = \frac{4}{5}$  and you get  $5x = \underline{\quad? \quad}$  and  $x = \underline{\quad? \quad}$ .

12. If  $\frac{4}{y} = \frac{7}{9}$ , then  $\underline{\quad? \quad} = \underline{\quad? \quad}$  and  $y = \underline{\quad? \quad}$ .

What can you conclude from the given information?

13.  $\frac{b}{a} = \frac{t}{x}$  and  $\frac{a}{b} = \frac{x}{p}$

14.  $\frac{2}{5} = \frac{y}{k}$  and  $\frac{2}{z} = \frac{5}{k}$

15. Apply the means-extremes property to  $\frac{a}{b} = \frac{c}{d}$  and also to  $\frac{a}{c} = \frac{b}{d}$ .

(Note that you have justified Property 1(b) on page 245 by showing that each proportion is equivalent to the same equation.)

16. Explain why  $\frac{a}{b} = \frac{c}{d}$  and  $\frac{b}{a} = \frac{d}{c}$  are equivalent. (This justifies Property 1(c) on page 245.)