

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

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

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.)