

LESSON
5-1 Practice B
Ratios and Proportions

Find two ratios that are equivalent to each given ratio.

1. $\frac{9}{12}$

2. $\frac{4}{20}$

3. $\frac{15}{25}$

4. $\frac{7}{12}$

5. $\frac{14}{7}$

6. $\frac{11}{22}$

7. $\frac{10}{3}$

8. $\frac{18}{28}$

9. $\frac{12}{27}$

Simplify to tell whether the ratios form a proportion.

10. $\frac{13}{39}$ and $\frac{16}{48}$

11. $\frac{21}{49}$ and $\frac{28}{56}$

12. $\frac{12}{28}$ and $\frac{18}{42}$

13. $\frac{18}{27}$ and $\frac{10}{15}$

14. $\frac{24}{27}$ and $\frac{27}{30}$

15. $\frac{14}{10}$ and $\frac{35}{25}$

16. $\frac{10}{32}$ and $\frac{25}{80}$

17. $\frac{16}{48}$ and $\frac{15}{45}$

18. Mrs. Walters wanted one daffodil plant for every 2 tulip plants in her garden. If she planted 20 daffodil bulbs, how many tulip bulbs did she plant?

19. In a survey, 9 out of 10 doctors recommended a certain medicine. If 80 doctors were surveyed, how many doctors recommended the medicine?

20. A molecule of sodium carbonate contains 2 atoms of sodium to every 3 atoms of oxygen. Could a compound containing 12 atoms of sodium and 15 atoms of oxygen be sodium carbonate? Explain.

LESSON Practice A
5-1 Ratios and Proportions

Find the missing numerator or denominator.

1. $\frac{5}{10} = \frac{1}{2}$ 2. $\frac{2}{8} = \frac{6}{24}$ 3. $\frac{3}{9} = \frac{1}{3}$

Find two ratios that are equivalent to each given ratio. Sample answers given.

4. $\frac{6}{12}$ 5. $\frac{2}{3}$ 6. $\frac{5}{15}$

$\frac{1}{2}, \frac{5}{10}$ $\frac{4}{6}, \frac{8}{12}$ $\frac{1}{3}, \frac{4}{12}$

7. $\frac{7}{8}$ 8. $\frac{5}{9}$ 9. $\frac{9}{15}$

$\frac{14}{16}, \frac{21}{24}$ $\frac{10}{18}, \frac{15}{27}$ $\frac{3}{5}, \frac{6}{10}$

Simplify to tell whether the ratios form a proportion.

10. $\frac{1}{2}$ and $\frac{3}{6}$ 11. $\frac{1}{7}$ and $\frac{2}{14}$ 12. $\frac{3}{5}$ and $\frac{5}{3}$ 13. $\frac{2}{6}$ and $\frac{4}{8}$

yes, $\frac{1}{2} = \frac{1}{2}$ yes, $\frac{1}{7} = \frac{1}{7}$ no, $\frac{3}{5} \neq \frac{5}{3}$ no, $\frac{1}{3} \neq \frac{1}{2}$

14. $\frac{4}{5}$ and $\frac{12}{15}$ 15. $\frac{3}{10}$ and $\frac{9}{20}$ 16. $\frac{2}{8}$ and $\frac{5}{20}$ 17. $\frac{5}{8}$ and $\frac{9}{12}$

yes, $\frac{4}{5} = \frac{4}{5}$ no, $\frac{3}{10} \neq \frac{9}{20}$ yes, $\frac{1}{4} = \frac{1}{4}$ no, $\frac{5}{8} \neq \frac{3}{4}$

18. Jesse saved one-half of what he made last week. Zoie made \$60 and saved an equivalent ratio to what Jesse saved. How much did Zoie save?

\$30

19. Tom has 100 baseball cards and 120 football cards. What is the ratio of baseball cards to football cards?

$\frac{5}{6}$

20. A recipe calls for 2 cups of milk to make 4 servings of corn chowder. Philip wants to make 10 servings of corn chowder. He plans to use 4 cups of milk. Is he planning to use the correct amount of milk? Explain.

No, the ratio $\frac{4}{10}$ is not equivalent to $\frac{2}{4}$.

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LESSON Practice B
5-1 Ratios and Proportions

Find two ratios that are equivalent to each given ratio. Sample answers given.

1. $\frac{9}{12}$ 2. $\frac{4}{20}$ 3. $\frac{15}{25}$

$\frac{3}{4}, \frac{18}{24}$ $\frac{1}{5}, \frac{6}{30}$ $\frac{3}{5}, \frac{6}{10}$

4. $\frac{7}{12}$ 5. $\frac{14}{7}$ 6. $\frac{11}{22}$

$\frac{14}{24}, \frac{21}{36}$ $\frac{2}{1}, \frac{8}{4}$ $\frac{1}{2}, \frac{5}{10}$

7. $\frac{10}{3}$ 8. $\frac{18}{28}$ 9. $\frac{12}{27}$

$\frac{20}{6}, \frac{30}{9}$ $\frac{9}{14}, \frac{27}{42}$ $\frac{4}{9}, \frac{8}{18}$

Simplify to tell whether the ratios form a proportion.

10. $\frac{13}{39}$ and $\frac{16}{48}$ 11. $\frac{21}{49}$ and $\frac{28}{56}$ 12. $\frac{12}{28}$ and $\frac{18}{42}$ 13. $\frac{18}{27}$ and $\frac{10}{15}$

yes, $\frac{1}{3} = \frac{1}{3}$ no, $\frac{3}{7} \neq \frac{1}{2}$ yes, $\frac{3}{7} = \frac{3}{7}$ yes, $\frac{2}{3} = \frac{2}{3}$

14. $\frac{24}{27}$ and $\frac{27}{30}$ 15. $\frac{14}{10}$ and $\frac{35}{25}$ 16. $\frac{10}{32}$ and $\frac{25}{80}$ 17. $\frac{16}{48}$ and $\frac{15}{45}$

no, $\frac{8}{9} \neq \frac{9}{10}$ yes, $\frac{7}{5} = \frac{7}{5}$ yes, $\frac{5}{16} = \frac{5}{16}$ yes, $\frac{1}{3} = \frac{1}{3}$

18. Mrs. Walters wanted one daffodil plant for every 2 tulip plants in her garden. If she planted 20 daffodil bulbs, how many tulip bulbs did she plant?

40 tulip bulbs

19. In a survey, 9 out of 10 doctors recommended a certain medicine. If 80 doctors were surveyed, how many doctors recommended the medicine?

72 doctors

20. A molecule of sodium carbonate contains 2 atoms of sodium to every 3 atoms of oxygen. Could a compound containing 12 atoms of sodium and 15 atoms of oxygen be sodium carbonate? Explain.

No, the ratio $\frac{12}{15}$ is not equivalent to $\frac{2}{3}$.

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LESSON Practice C
5-1 Ratios and Proportions

Find two ratios that are equivalent to each given ratio. Sample answers given.

1. $\frac{15}{27}$ 2. $\frac{18}{81}$ 3. $\frac{36}{54}$

$\frac{5}{9}, \frac{10}{18}$ $\frac{2}{9}, \frac{4}{18}$ $\frac{2}{3}, \frac{4}{6}$

Tell whether the ratios form a proportion. If not, find a ratio that would form a proportion with the first ratio.

4. $\frac{25}{40}$ and $\frac{35}{56}$ 5. $\frac{27}{45}$ and $\frac{33}{55}$ 6. $\frac{10}{12}$ and $\frac{24}{30}$ 7. $\frac{24}{72}$ and $\frac{30}{78}$

yes, $\frac{5}{8} = \frac{5}{8}$ yes, $\frac{3}{5} = \frac{3}{5}$ no, $\frac{5}{6}$ no, $\frac{1}{3}$

8. $\frac{9}{27}$ and $\frac{10}{28}$ 9. $\frac{18}{40}$ and $\frac{27}{60}$ 10. $\frac{12}{15}$ and $\frac{14}{17}$ 11. $\frac{24}{32}$ and $\frac{21}{28}$

no, $\frac{1}{3}$ yes, $\frac{9}{20} = \frac{9}{20}$ no, $\frac{4}{5}$ yes, $\frac{3}{4} = \frac{3}{4}$

12. $\frac{9}{63}$ and $\frac{12}{84}$ 13. $\frac{20}{24}$ and $\frac{35}{40}$ 14. $\frac{32}{36}$ and $\frac{48}{54}$ 15. $\frac{21}{33}$ and $\frac{42}{66}$

yes, $\frac{1}{7} = \frac{1}{7}$ no, $\frac{5}{6}$ yes, $\frac{8}{9} = \frac{8}{9}$ yes, $\frac{7}{11} = \frac{7}{11}$

16. A clothing store ordered 10 dozen sweatshirts, 60 of which were size XL. The next month, the store ordered 15 dozen sweatshirts with an equivalent number being size XL. How many XL sweatshirts were ordered in the second month?

90 sweatshirts

17. Hayden has a collection of 250 CDs of various types of music. If 75 of the CDs are country music, what is the ratio of country CDs to the total number of CDs in the collection?

$\frac{3}{10}$

18. Mr. Lee has $\frac{3}{10}$ of his gross salary deducted for taxes. If Mr. Lee makes \$900 a week, how much is deducted for taxes?

\$270

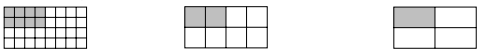
19. A molecule of phosphoric acid contains 3 atoms of hydrogen to every 4 atoms of oxygen. Could a compound containing 16 atoms of oxygen and 12 atoms of hydrogen be phosphoric acid? Explain.

Yes, the ratio $\frac{12}{16}$ is equivalent to $\frac{3}{4}$.

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LESSON Reteach
5-1 Ratios and Proportions

A ratio compares two quantities by division. Equivalent ratios make the same comparison.



$\frac{8}{32} = \frac{2}{8} = \frac{1}{4}$

To find equivalent ratios:

Divide by a common factor. Multiply by a common factor.

$\frac{10 \div 5}{15 \div 5} = \frac{2}{3}$ $\frac{10 \times 2}{15 \times 2} = \frac{20}{30}$

So, two ratios equivalent to $\frac{10}{15}$ are $\frac{2}{3}$ and $\frac{20}{30}$.

Complete to find two ratios equivalent to each given ratio.

1. $\frac{16 \div 4}{40 \div 4} = \frac{4}{10}$ $\frac{16 \times 3}{40 \times 3} = \frac{48}{120}$ 2. $\frac{75 \div 25}{100 \div 25} = \frac{3}{4}$ $\frac{75 \times 2}{100 \times 2} = \frac{150}{200}$

Name two ratios equivalent to the given ratio. Sample answers given.

3. $\frac{6}{9}$ 4. $\frac{1}{3}$ 5. $\frac{2}{5}$ 6. $\frac{16}{20}$

$\frac{2}{3}, \frac{18}{27}$ $\frac{3}{9}, \frac{9}{27}$ $\frac{12}{30}, \frac{8}{20}$ $\frac{8}{10}, \frac{4}{5}$

When two equivalent ratios are set equal to each other, they form a proportion.

To tell whether two ratios form a proportion, write each in simplest form.

Does $\frac{16}{32} = \frac{50}{100}$? Does $\frac{8}{18} = \frac{10}{15}$?

$\frac{16 \div 16}{32 \div 16} = \frac{1}{2}$ $\frac{50 \div 50}{100 \div 50} = \frac{1}{2}$ $\frac{8 \div 2}{18 \div 2} = \frac{4}{9}$ $\frac{10 \div 5}{15 \div 5} = \frac{2}{3}$

The ratios form a proportion. The ratios do not form a proportion.

Tell whether the ratios form a proportion.

7. $\frac{14}{21} = \frac{50}{75}$ 8. $\frac{27}{48} = \frac{54}{72}$

yes no

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