

## Dividing Fractions and Simplifying when Multiplying

### Lesson 5

Write the reciprocal of the number.

1.  $\frac{5}{8} \rightarrow \frac{8}{5}$

2.  $6 \rightarrow \frac{1}{6}$

3.  $\frac{1}{3} \rightarrow \frac{3}{1}$

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

### Classwork

Example A

Divide using a common denominator.

$$\frac{5}{6} \div \frac{2}{3} = \frac{5}{6} \div \frac{4}{6} = \frac{5}{6} \times \frac{6}{4} = \frac{5}{4} = 1\frac{1}{4}$$

Divide without using a common denominator.

$$\frac{5}{6} \div \frac{2}{3} = \frac{5}{6} \times \frac{3}{2} = \frac{15}{12} = 1\frac{3}{12} = 1\frac{1}{4}$$

Divide by simplifying common factors before multiplying.

$$\frac{5}{6} \div \frac{2}{3} = \frac{5}{\underset{2}{\cancel{6}}} \times \frac{\cancel{3}^1}{2} = \frac{5}{4} = 1\frac{1}{4}$$

$$5. \frac{3}{5} \div \frac{2}{15} = \frac{\cancel{3}}{5} \times \frac{\cancel{15}^3}{2} = \frac{9}{2} = 4\frac{1}{2}$$

$$6. 10 \div \frac{2}{7} = \frac{\cancel{10}^5}{1} \times \frac{7}{\cancel{2}_1} = \frac{35}{1} = 35$$

$$7. \frac{3}{8} \div \frac{9}{16} = \frac{\cancel{3}}{8} \times \frac{\cancel{16}^2}{\cancel{9}_3} = \frac{2}{3}$$

$$8. \frac{5}{9} \div \frac{2}{7} = \frac{5}{9} \times \frac{7}{2} = \frac{35}{18} = 1\frac{17}{18}$$

$$9. \frac{10}{27} \div \frac{2}{3} = \frac{\cancel{10}^5}{\cancel{27}_9} \times \frac{\cancel{3}^1}{\cancel{2}_1} = \frac{5}{9}$$

$$10. \frac{18}{25} \div \frac{8}{15} = \frac{\cancel{18}^9}{\cancel{25}_5} \times \frac{\cancel{15}^3}{\cancel{8}_4} = \frac{27}{20} = 1\frac{7}{20}$$

$$11. \frac{7}{12} \div 14 = \frac{\cancel{7}^1}{12} \times \frac{1}{\cancel{14}_2} = \frac{1}{24}$$

12. You have  $\frac{2}{3}$  of a pizza. You divide the remaining pizza into 4 equal pieces. What fraction of the pizza is each piece?

$$\frac{2}{3} \div 4 = \frac{2}{3} \times \frac{1}{4} = \frac{1}{6}$$

13. You have five quarts of paint. It takes  $\frac{5}{8}$  quart to paint each chair you are asked to paint. How many chairs can you paint?

$$5 \div \frac{5}{8} = 5 \times \frac{8}{5} = 8$$

14. How many times larger is a 10 pound dog than a hamster weighing  $\frac{5}{8}$  pounds?

$$10 \div \frac{5}{8} = 10 \times \frac{8}{5} = 16$$

15. USE A PICTURE TO SOLVE!

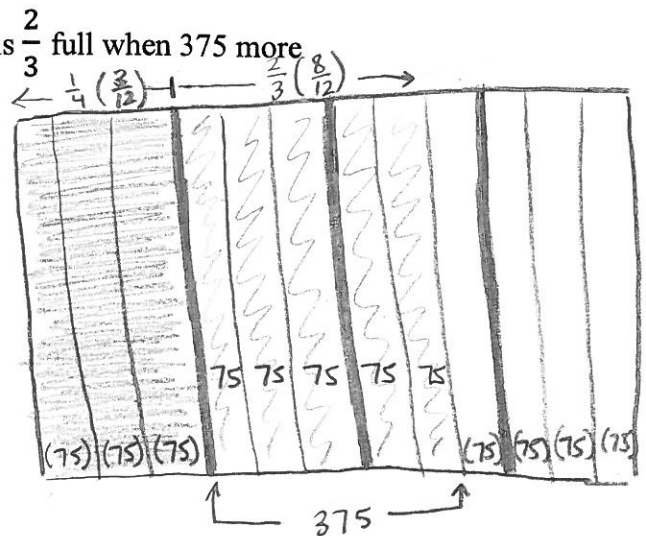
A digital camera memory card is  $\frac{1}{4}$  full. The card is  $\frac{2}{3}$  full when 375 more pictures have been taken.

- A. How many pictures can the memory card hold?

$$\frac{1 \times 3 = 3}{4 \times 3 = 12} \quad \frac{2 \times 4 = 8}{3 \times 4 = 12}$$

- B. How many pictures were originally on the card?

$$\begin{array}{r} 75 \\ \times 3 \\ \hline 225 \text{ photos} \end{array}$$



$$\begin{array}{r} 12 \\ \times 75 \\ \hline 160 \\ 84 \\ \hline 900 \\ \text{photos} \end{array}$$

$$16. \frac{1}{5} \div \frac{5}{1} \div \frac{3}{1} \times \frac{2}{1} \rightarrow \frac{1}{5} \times \frac{1}{5} \times \frac{1}{3} \times \frac{2}{1} = \frac{2}{75}$$

$$\begin{array}{r} 75 \\ 5 \overline{) 375} \\ \underline{35} \\ 25 \\ \underline{25} \\ 0 \end{array}$$

$$17. 8 + \frac{7}{9} \div \frac{2}{3} = 8 + \frac{7}{9} \times \frac{3}{2} = 8 + \frac{7}{6} = 8\frac{7}{6} = 9\frac{1}{6}$$