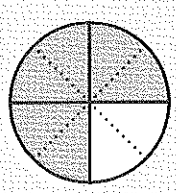
Exercise 16

Dividing Fractions by Fractions

To divide a fraction by a fraction, first invert the divisor. **Invert** means to turn upside down, which gives the **reciprocal.** Then, change the operation sign to multiplication.

How many $\frac{1}{8}$s are in $\frac{3}{4}$?



Divide. $\frac{3}{4} \div \frac{1}{8}$

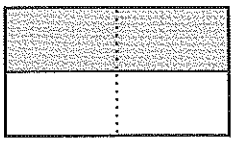
Invert the divisor.

Change the operation sign. $\frac{3}{4} \times \frac{8}{1}$

Cancel if possible. Multiply. $\frac{3}{\cancel{4}_{1}} \times \frac{\cancel{8}^{2}}{1} = \frac{6}{1} = 6$

Look at the figures. Divide to solve the problems.

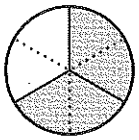
1.



How many $\frac{1}{4}$s are there in $\frac{1}{2}$?

$\frac{1}{2} \div \frac{1}{4} =$

2.



How many $\frac{1}{6}$s are there in $\frac{2}{3}$?

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

Write the reciprocal for each number.

3. $\frac{1}{2}$ **4.** $\frac{4}{5}$ **5.** 6 **6.** $\frac{8}{9}$ **7.** $\frac{6}{10}$

Divide the fractions. Reduce your answer to lowest terms.

8. $\frac{1}{2} \div \frac{1}{6} =$ **9.** $\frac{6}{8} \div \frac{5}{6} =$ **10.** $\frac{2}{3} \div \frac{6}{7} =$

11. $\frac{6}{10} \div \frac{1}{3} =$ **12.** $\frac{1}{12} \div \frac{2}{3} =$ **13.** $\frac{3}{4} \div \frac{8}{9} =$

14. $\frac{2}{4} \div \frac{5}{6} =$ **15.** $\frac{7}{8} \div \frac{1}{2} =$ **16.** $\frac{2}{3} \div \frac{1}{3} =$

17. $\frac{3}{12} \div \frac{1}{2} =$ **18.** $\frac{9}{12} \div \frac{6}{7} =$ **19.** $\frac{8}{9} \div \frac{1}{4} =$

Directions: Choose the one best answer to each item. Circle the number of the correct answer.

20. Liz is learning how to divide fractions. She must use the reciprocal of the divisor to rewrite the division problem as a multiplication problem. What reciprocal would she write for $\frac{2}{3}$ divided by $\frac{1}{2}$?

(1) $\frac{1}{2}$
(2) $\frac{3}{2}$
(3) $\frac{2}{1}$
(4) $\frac{2}{3}$
(5) $\frac{1}{3}$

21. Raul is working on the blueprint for a house. He draws a line $\frac{6}{8}$ inch long. He wants to show beams every $\frac{1}{4}$ inch along this line. If he starts at one end of the line, how many beams can he mark off on the $\frac{6}{8}$-inch line?

(1) 1 beam
(2) 2 beams
(3) 3 beams
(4) 4 beams
(5) 5 beams

22. A woodworker is making a molding that is $\frac{3}{4}$ inch wide. He wants to divide it into $\frac{1}{8}$-inch sections so that he can router the facets. How many facets will it have?

(1) 2 facets
(2) 3 facets
(3) 4 facets
(4) 5 facets
(5) 6 facets

23. A ranger has $\frac{3}{4}$ acre of forest that she wants to divide into $\frac{1}{16}$-acre campsites. How many campsites will she have?

(1) 3 campsites
(2) 6 campsites
(3) 9 campsites
(4) 12 campsites
(5) 15 campsites

24. Ms. Dey is baking bread. She has $\frac{1}{2}$ cup of flour that needs to be split into $\frac{1}{4}$-cup portions. How many portions will she have?

(1) 2 portions
(2) 3 portions
(3) 4 portions
(4) 5 portions
(5) 6 portions

25. A community planning board purchased $\frac{7}{8}$ acre of land. They want to fence off $\frac{1}{16}$-acre garden plots. How many garden plots can they make?

(1) 12 plots
(2) 13 plots
(3) 14 plots
(4) 15 plots
(5) 16 plots

26. A store allows $\frac{2}{3}$-hour for lunch break. A manager needs to schedule short shifts to cover each lunch break. The manager needs to divide the time into shifts of $\frac{1}{6}$ of an hour. How many shifts will he need to cover?

(1) 2 shifts
(2) 3 shifts
(3) 4 shifts
(4) 5 shifts
(5) 6 shifts