Model Division

Match each question with the correct model. Then complete the division sentence.

1. What is 4 divided by \(\frac{1}{3}\)?
   \[4 \div \frac{1}{3} = \square\]

2. What is 4 divided by \(\frac{1}{5}\)?
   \[4 \div \frac{1}{5} = \square\]

3. What is 4 divided by \(\frac{1}{2}\)?
   \[4 \div \frac{1}{2} = \square\]

Complete each division or multiplication to find \(a\) and \(b\).
Use fraction strips or grid paper for help.

4. \(6 \div \frac{1}{3} = a\) \quad 6 \times 3 = b \quad \square\)

5. \(7 \div \frac{1}{5} = a\) \quad 7 \times 5 = b \quad \square\)

6. \(8 \div \frac{1}{4} = a\) \quad 8 \times 4 = b \quad \square\)

7. \(2 \div \frac{1}{6} = a\) \quad 2 \times 6 = b \quad \square\)

Use your answers from Exercises 4–7 to answer Exercises 8–9.

8. What is a unit fraction?

9. What rule can you write about dividing a whole number by a unit fraction?

Divide. Check your answers.

10. \(\frac{5}{6} \div \frac{1}{6}\) \quad 11. \(\frac{4}{5} \div \frac{1}{5}\) \quad 12. \(\frac{3}{7} \div \frac{1}{7}\) \quad 13. \(\frac{3}{8} \div \frac{1}{8}\)

14. \(\frac{2}{7} \div \frac{1}{7}\) \quad 15. \(\frac{1}{2} \div \frac{1}{2}\) \quad 16. \(\frac{4}{6} \div \frac{2}{6}\) \quad 17. \(\frac{6}{9} \div \frac{3}{9}\)

18. \(\frac{8}{12} \div \frac{4}{12}\) \quad 19. \(\frac{6}{10} \div \frac{2}{10}\) \quad 20. \(\frac{4}{5} \div \frac{3}{15}\) \quad 21. \(\frac{2}{3} \div \frac{3}{9}\)

Test Prep

22. Find \(\frac{6}{7} \div \frac{1}{7}\). Explain how you found your answer.

23. Beth had 4 feet of rope. She divided each foot into pieces that measured \(\frac{1}{4}\) of a foot. How many sections of rope did she then have?
   \[\text{A} \quad \frac{1}{16}\] \quad \[\text{C} \quad 4\]
   \[\text{B} \quad 8\] \quad \[\text{D} \quad 16\]

Use with text pages 320–321.
Model Division
Find $9 \div \frac{1}{3}$.

Step 1: Draw 9 whole circles.
Step 2: Separate each circle into thirds.
Step 3: Count how many thirds are in 9 circles. $9 \div \frac{1}{3} = 27$

Write the equation represented by each model. Write the answer in simplest form.

1. 

2. 

3. 

4. 

Divide. Check your answers.

5. $\frac{3}{5} \div \frac{1}{5}$

6. $\frac{5}{8} \div \frac{1}{8}$

7. $\frac{7}{10} \div \frac{1}{10}$

8. $\frac{5}{6} \div \frac{1}{6}$

9. $\frac{10}{12} \div \frac{2}{12}$

10. $\frac{4}{5} \div \frac{2}{5}$

11. $\frac{9}{10} \div \frac{3}{10}$

12. $\frac{6}{8} \div \frac{2}{8}$

13. Compare $4 \div \frac{1}{8}$ and $8 \div \frac{1}{4}$. Use a model to help explain your answer if necessary.