Practice 5-4

Dividing Rational Numbers

1. Which of these is the reciprocal of $-\dfrac{14}{5}$?

   ○ A. $\dfrac{5}{14}$　　　　　　　　　　　　○ C. $-\dfrac{14}{5}$

   ○ B. $-\dfrac{5}{14}$　　　　　　　　　　　○ D. $\dfrac{14}{5}$

2. Find the reciprocal of $\dfrac{4}{7}$. Simplify your answer.

3. Which multiplication expression is equivalent to the division expression
   $-\dfrac{7}{17} \div \dfrac{13}{34}$?

   ○ A. $-\dfrac{17}{7} \times \dfrac{13}{34}$　　　　　　　　○ C. $-\dfrac{7}{17} \times \dfrac{13}{34}$

   ○ B. $-\dfrac{17}{7} \times \dfrac{34}{13}$　　　　　　　　○ D. $-\dfrac{7}{17} \times \dfrac{34}{13}$

4. Divide $\dfrac{5}{7} \div \left(-\dfrac{11}{5}\right)$ and simplify.

5. Solve $-\dfrac{9}{2}y = \dfrac{27}{2}$ for y.

6. The equation $d = \dfrac{2}{5} t$ describes the distance d, in yards, an object travels in
   t minutes. How long does it take the object to travel $1\dfrac{4}{5}$ yards?

7. a) **Writing** Which of the numbers $-\dfrac{7}{13}$, $1\dfrac{6}{7}$, $-1\dfrac{6}{7}$, and $\dfrac{7}{13}$ is the reciprocal
      of $1\dfrac{6}{7}$?

   b) Which is the reciprocal of $\dfrac{7}{13}$?

   c) What do you notice about the reciprocals of $1\dfrac{6}{7}$ and $\dfrac{7}{13}$? Explain.

8. a) **Reasoning** Find the reciprocal of $1\frac{1}{17}$.

   b) Find the reciprocal of $\frac{17}{18}$.

   c) Explain how finding the first reciprocal simplifies finding the second reciprocal.

9. a) **Error Analysis** Your friend says the quotient $\frac{3}{4} \div \frac{1}{4}$ is $\frac{1}{3}$. What is the correct quotient?

   b) What mistake did your friend likely make?
   - ○ A. Your friend multiplied with the reciprocal of the first fraction, not the second fraction.
   - ○ B. Your friend multiplied $\frac{4}{3} \times 4$.
   - ○ C. Your friend added the fractions instead of dividing.
   - ○ D. Your friend multiplied $\frac{3}{4} \times \frac{1}{4}$.

10. **Gardening** A certain plant grows $1\frac{2}{5}$ inches every week. How long will it take the plant to grow $4\frac{4}{5}$ inches?
    - ○ A. 3 weeks, 3 days
    - ○ C. 3 weeks, 2 days
    - ○ B. 2 weeks, 3 days
    - ○ D. 3 weeks, 3 days

11. **Open-Ended** Which multiplication expression is equivalent to $\frac{5}{8} \div \frac{1}{16}$?
    - ○ A. $\frac{8}{5} \times \frac{1}{16}$
    - ○ C. $\frac{5}{8} \times 16$
    - ○ B. $\frac{5}{8} \times \frac{1}{16}$
    - ○ D. $\frac{8}{5} \times 16$

12. Find the reciprocal of $-4\frac{7}{8}$.

13. Perform the indicated operation.

    $$3\frac{1}{6} \div \left(-1\frac{4}{9}\right)$$

14. **Think About the Process** You want to write a multiplication expression equivalent to $-2\frac{1}{8} \div 6\frac{4}{5}$.

a) What is the first step?
- ○ A. Find the reciprocal of the divisor.
- ○ B. Find the reciprocal of the dividend.
- ○ C. Multiply the numerators of the fractions.
- ○ D. Write the mixed numbers as improper fractions.

b) Which multiplication expression is equivalent to $-2\frac{1}{8} \div 6\frac{4}{5}$?

- ○ A. $-\frac{17}{8} \times \frac{34}{5}$
- ○ B. $-\frac{8}{17} \times \frac{5}{34}$
- ○ C. $-\frac{17}{8} \times \frac{5}{34}$
- ○ D. $-\frac{8}{17} \times \frac{34}{5}$

15. **Think About the Process** To solve the equation $\frac{9}{5}m = \frac{3}{7}$ for m, the first step is to divide each side of the equation by $\frac{9}{5}$.

a) What is the next step?
- ○ A. Find the reciprocal of $\frac{9}{5}$.
- ○ B. Write $\frac{9}{5}$ as a mixed number.
- ○ C. Multiply $\frac{9}{5} \times \frac{3}{7}$.
- ○ D. Find the common denominator for $\frac{9}{5}$ and $\frac{3}{7}$.

b) What is the solution?