7-3

Name _____ Date _____

Multiplying Fractions (Pages 286–289)

Use the rules of signs for multiplying integers when you multiply rational numbers.

Multiplying Fractions	To multiply fractions, multiply the numerators and multiply the denominators. $\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$, $b \neq 0$, $d \neq 0$

EXAMPLES

A Find $3\frac{1}{2} \cdot 2\frac{2}{5}$.

$3\frac{1}{2} \cdot 2\frac{2}{5} = \frac{7}{2} \cdot \frac{12}{5}$ *Rename the mixed numbers as improper fractions.*

$= \frac{84}{10}$ *Multiply.*

$= 8\frac{2}{5}$ *Simplify.*

B Find $\left(-\frac{3}{4}\right)^3$.

$\left(-\frac{3}{4}\right)^3$ means $-\frac{3}{4}$ used as a factor 3 times.

$\left(-\frac{3}{4}\right)^3 = -\frac{3}{4} \cdot \left(-\frac{3}{4}\right) \cdot \left(-\frac{3}{4}\right)$

$= \frac{9}{16}\left(-\frac{3}{4}\right)$

$= -\frac{27}{64}$

Try These Together

1. Solve $z = \frac{1}{8} \cdot \frac{4}{7}$.

HINT: Simplify by dividing numerator and denominator by 4.

2. Solve $m = -\frac{2}{3} \cdot \frac{3}{4}$.

HINT: Will the product be positive or negative? Simplify before you multiply.

PRACTICE

Solve each equation. Write the solution in simplest form.

3. $\frac{3}{8} \cdot \left(-\frac{7}{8}\right) = p$ **4.** $-4\frac{2}{5} \cdot -\frac{5}{8} = y$ **5.** $v = -\frac{1}{2} \cdot 5\frac{5}{6}$

6. $q = 8\left(-\frac{4}{5}\right)$ **7.** $j = -1\frac{1}{8} \cdot \left(-1\frac{3}{8}\right)$ **8.** $h = 1\frac{1}{5} \cdot 3\frac{2}{9}$

9. $f = 3\left(-7\frac{1}{6}\right)$ **10.** $x = \left(-\frac{5}{6}\right)^2$ **11.** $k = \left(-\frac{1}{2}\right)^3$

Evaluate each expression if $k = 1\frac{1}{2}$, $\ell = -\frac{1}{4}$, $m = 1\frac{5}{6}$, and $n = -\frac{2}{3}$.

12. $k\ell$ **13.** $2m$ **14.** n^2 **15.** $\ell^3(-k)$

16. Fitness Mike and his twin brother ran a $3\frac{1}{6}$-mile relay race. The twins ran $\frac{2}{3}$ of the race. How far did the twins run?

17. **Standardized Test Practice** Solve $-\frac{2}{7} \cdot \frac{1}{4} = x$.

A $-\frac{1}{14}$ **B** $\frac{1}{14}$ **C** $-\frac{3}{28}$ **D** $\frac{3}{28}$

Answers: **1.** $\frac{1}{14}$ **2.** $-\frac{1}{2}$ **3.** $-\frac{21}{64}$ **4.** $2\frac{3}{4}$ **5.** $-2\frac{11}{12}$ **6.** $-6\frac{2}{5}$ **7.** $1\frac{35}{64}$ **8.** $3\frac{13}{15}$ **9.** $-21\frac{1}{2}$ **10.** $\frac{25}{36}$ **11.** $-\frac{1}{8}$ **12.** $-\frac{3}{8}$ **13.** $3\frac{2}{3}$ **14.** $\frac{4}{9}$ **15.** $\frac{3}{128}$ **16.** $2\frac{1}{9}$ miles **17.** A