Dividing Fractions

To divide by a fraction, multiply by its multiplicative inverse. Use the rules for dividing integers when you divide negative fractions.

Examples **1** Solve $m = 24 \div \frac{3}{4}$.

$m = \frac{24}{1} \div \frac{3}{4}$ *Rename 24 as* $\frac{24}{1}$.

$m = \frac{24}{1} \times \frac{4}{3}$ *Multiply by* $\frac{4}{3}$, *the multiplicative inverse of* $\frac{3}{4}$.

$m = 32$

2 Solve $p = -2\frac{1}{3} \div \frac{5}{6}$.

$p = -\frac{7}{3} \div \frac{5}{6}$ *Rename* $-2\frac{1}{3}$ *as* $-\frac{7}{3}$.

$p = -\frac{7}{3} \times \frac{6}{5}$ *Multiply by* $\frac{6}{5}$, *the multiplicative inverse of* $\frac{5}{6}$.

$p = -\frac{14}{5}$ *The product of a negative number and a positive number is negative.*

$p = -2\frac{4}{5}$ *Rename* $-\frac{14}{5}$ *as* $-2\frac{4}{5}$.

3 Solve $r = -\frac{7}{8} \div \left(-4\frac{1}{2}\right)$.

$r = -\frac{7}{8} \div \left(-\frac{9}{2}\right)$ *Rename* $-4\frac{1}{2}$ *as* $-\frac{9}{2}$.

$r = -\frac{7}{8} \times \left(-\frac{2}{9}\right)$ *Multiply by* $-\frac{2}{9}$, *the multiplicative inverse of* $-\frac{9}{2}$.

$r = \frac{7}{36}$ *The product of two negative numbers is positive.*

Solve each equation. Write the solution in simplest form.

1. $y = \frac{4}{5} \div \frac{1}{10}$
2. $15 \div \frac{5}{8} = k$
3. $r = -25 \div 1\frac{3}{7}$
4. $5\frac{1}{3} \div \left(-\frac{3}{8}\right) = t$
5. $f = -\frac{15}{16} \div \left(-\frac{3}{4}\right)$
6. $7\frac{1}{2} \div \left(-2\frac{1}{2}\right) = y$