

November 5, 2014 ^{5th}
^{6th}



11/5 - Dividing Rational Numbers - Fractions

Discuss with your partners:

How are multiply and divide related?

BATMAN RULES

They are opposites

One checks the other.

P EMD AS

Divide is actually multiply

Work with your partners:
Give the reciprocal of each number:

$$\frac{2}{3}$$
$$\frac{3}{2}$$

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

$$-\frac{3}{5}$$
$$-\frac{5}{3}$$

$$-\frac{6}{1}$$
$$-\frac{1}{6}$$

leave the negative on the top!

To divide fractions, flip the SECOND fraction over and then multiply instead of divide.

This is also referred to as "multiply by the reciprocal"

Divide:

$$\begin{aligned} & \frac{2}{3} \div \frac{1}{2} \\ &= \frac{2}{3} \cdot \frac{2}{1} \\ &= \frac{4}{3} \\ &= 1\frac{1}{3} \end{aligned}$$

Cannot
Cross-cancel
in \div

$$\begin{aligned} & \frac{3}{8} \div \frac{6}{7} \\ &= \frac{\cancel{3}^1}{8} \cdot \frac{7}{\cancel{6}_2} \\ &= \frac{7}{16} \end{aligned}$$

$$\begin{aligned} & \frac{-3}{4} \div \frac{1}{2} \\ &= \frac{-3}{4} \cdot \frac{2}{1} \\ &= \frac{-6}{4} = -\frac{3}{2} \end{aligned}$$

$$\begin{aligned} & \frac{-5}{6} \div \frac{-8}{9} \\ &= \frac{-5}{\cancel{6}_2} \cdot \frac{9}{\cancel{8}_4} \\ &= \frac{15}{6} \end{aligned}$$

Divide:

$$\begin{aligned} & \frac{6}{1} \div \frac{-2}{3} \\ &= \frac{\cancel{6}^3}{1} \cdot \frac{-3}{\cancel{2}_1} \\ &= \frac{-9}{1} \\ &= -9 \end{aligned}$$

$$\begin{aligned} & \frac{3}{4} \div \frac{-6}{1} \\ &= \frac{\cancel{3}_1}{4} \cdot \frac{-1}{\cancel{6}_2} \\ &= \frac{-1}{8} \end{aligned}$$

Divide. Write answers in simplest form.

Use **BATMAN** rules!

$$\begin{aligned} & -2\frac{2}{3} \div 2\frac{2}{5} \\ & = -\frac{8}{3} \div \frac{12}{5} \\ & = -\frac{8}{3} \cdot \frac{5}{12} \\ & = -\frac{40}{36} \\ & = -\frac{10}{9} \end{aligned}$$

$$\begin{aligned} & 1\frac{2}{3} \div -2\frac{2}{3} \\ & = \frac{5}{3} \div -\frac{8}{3} \\ & = \frac{5}{3} \cdot -\frac{3}{8} \\ & = -\frac{5}{8} \end{aligned}$$

Homework

Lilac WS 11

Due Friday