

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



11/5 - Dividing Rational Numbers - Fractions

Discuss with your partners:

How are multiply and divide related?

They check each other

They are opposites

They work together in fractions

BATMAN rules

PEMDAS

Work with your partners: "flip" a fraction
Give the reciprocal of each number:

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

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

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

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

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

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

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

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

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:

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

Do NOT
cancel
in \div !

$$\begin{aligned} & \frac{3}{8} \div \frac{6}{7} \\ &= \frac{3}{8} \cdot \frac{7}{6} \\ &= \left(\frac{7}{16}\right) \end{aligned}$$

$$\begin{aligned} & \frac{-3}{4} \div \frac{1}{2} \\ &= \frac{-3}{4} \cdot \frac{2}{1} \\ &= \frac{-3 \cdot 2}{4} = \left(-1\frac{1}{2}\right) \end{aligned}$$

$$\begin{aligned} & \frac{-5}{6} \div \frac{-8}{9} \\ &= \frac{-5}{6} \cdot \frac{9}{-8} \\ &= \left(\frac{15}{16}\right) \end{aligned}$$

Divide:

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

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

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 WS11

Due Friday