

Warm-Up

Evaluate the following expressions:

$$1) -\frac{11}{6} - \frac{5}{8} + \frac{1}{4}$$

$$-\frac{44}{24} - \frac{15}{24} + \frac{6}{24}$$

$$2) (-4.55)(7.28)$$

$$-\frac{53}{24} - 33.124$$

$$3) \left(-\frac{2}{7}\right) \cdot \left(-\frac{1}{3}\right)$$

$$\frac{2}{21}$$

$$4) \left(-3\frac{3}{4}\right) \left(-2\frac{1}{3}\right)$$

$$\left(-\frac{5}{4}\right) \left(-\frac{7}{3}\right)$$

$$\frac{35}{4}$$

Dividing Rational Numbers

Remember FRACTIONS are just numbers!

THUS



The properties are still the same.

$$(+)\div(+)=(+)$$

* When two rational numbers have the **same sign**, their quotient is **positive**.

$$(-)\div(-)=(+)$$

* When two rational numbers have the **different signs**, their quotient is **negative**.

$$(+)\div(-)=(-)$$

Determine the sign of each quotient

a) $\left(\frac{-3}{4}\right) \div \left(\frac{-7}{8}\right)$

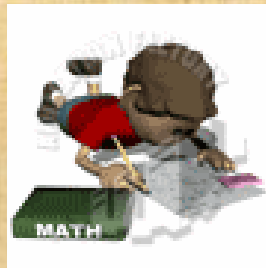
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b) $\left(\frac{-2}{5}\right) \div \left(\frac{6}{7}\right)$

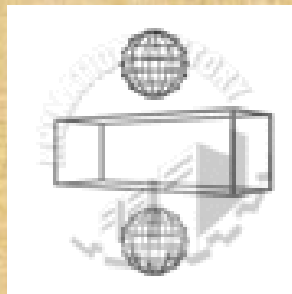
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c) $7.8 \div 3.6$

+



Dividing Fractions



Reciprocal

- Every **non-zero** fraction has a reciprocal.
- Fractions with a denominator of "0" are undefined. $\left(\frac{6}{0}\right)$
- To find the **reciprocal** of a fraction, you simply **flip** the fraction !!

$$\frac{4}{5}$$

$$\frac{5}{4}$$





**Express each
division question as
a multiplication
question !!!!**



Terminology

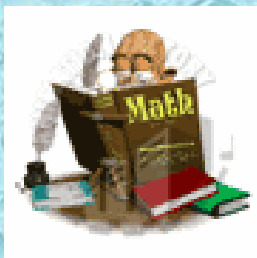
Dividend

Quotient

Divisor

$10 \div 5 = 2$

The slide features a light blue background with a pattern of water droplets. At the top left is a circular icon with a stylized 'e' and a vertical line. The word 'Terminology' is written in a large, purple, 3D-style font. In the center, a yellow five-pointed star with a purple outline contains the equation $10 \div 5 = 2$. Three red arrows point from labels to parts of the equation: one from 'Dividend' to the number 10, one from 'Divisor' to the number 5, and one from 'Quotient' to the number 2. The labels are underlined.



Dividing Fractions

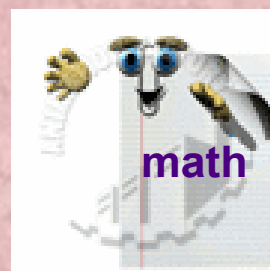
Multiply the **dividend** by the **reciprocal** of the **divisor** !!

$$\frac{4}{5} \div \frac{1}{3} =$$

$$\frac{4}{5} \times \frac{3}{1} = \frac{12}{5}$$

<http://www.youtube.com/watch?v=80WArGwAjt8&feature=related>

Try These !!



#1

$$\frac{4}{5} \div \frac{7}{8} =$$

$$\frac{4}{5} \times \frac{8}{7} = \frac{32}{35}$$

#2

$$\frac{1}{8} \div \frac{-6}{5}$$

$$\frac{1}{8} \times \frac{5}{-6}$$

$$= -\frac{5}{48}$$



#3



$$2\frac{1}{4} \div \frac{5}{1} =$$

$$\frac{9}{4} \times \frac{1}{5} =$$

$$\frac{9}{20}$$

Determine the missing number in the division statement.

Missing Dividend

$$\boxed{12} \div 4 = 3$$

Think:

Division is the inverse of **Multiplication**.

To Solve for Missing Dividend
take **Divisor** X **Quotient**

$$(\quad) = 3 \times 4$$

Why this works

$$\underline{12} \div 4 = 3 \checkmark$$



Now with Rational #s

You Try

$$A) \quad (\quad) \div \left(\frac{5}{11} \right) = \frac{3}{7}$$

$$\frac{\overline{3} \times \overline{5}}{\overline{7} \times \overline{11}} = \frac{15}{77}$$

To Solve for Missing Dividend
take **Divisor** X **Quotient**

$$B) \quad \underline{\quad} \div 12.6 = 4.2$$

$$4.2 \times 12.6 = 52.92$$

Determine the missing number in the division statement.

Missing Divisor

$$15 \div (\quad) = -5$$

Handwritten in red:
 $15 \div -5 = -3$

Think:

Quotient is negative thus the BLANK must be what sign? _____

To solve for missing Divisor

take **Dividend** \div **Quotient**

$$15 \div (\quad) = -5$$

Why this works

$$15 \div (-3) = -5 \checkmark$$



To solve for missing Divisor
take **Dividend \div Quotient**

You Try

$$1) \quad -2.5 \div \underline{\quad} = 5$$

$$\begin{array}{l} -2.5 \div 5 \\ = -0.5 \end{array}$$

$$2) \quad \left(\frac{-12}{21}\right) \div (\quad) = \frac{5}{8}$$

$$\frac{-12}{21} \div \frac{5}{8}$$

$$\frac{-12}{21} \times \frac{8}{5} = \frac{-96}{105}$$

Determine the missing number in the division statement.

Divisor Missing & Fractions

$$\left(\frac{-6}{7}\right) \div (\quad) = \frac{18}{49}$$

The Quotient is **Positive**

Thus the divisor is _____

$$\begin{array}{r} -6 \div 18 \\ \hline 7 \quad 49 \\ -16 \\ \hline 17 \end{array} \times \begin{array}{r} 49 \\ \hline 183 \end{array}$$

Divisor = Dividend \div Quotient

Use the strategy of multiplying by the reciprocal

$$\frac{-7}{183}$$

Simplify $\frac{-7}{3}$

Your Turn

$$A) \left(\frac{15}{26}\right) \div (\quad) = \frac{-3}{2}$$

$$\frac{15}{26} \div \frac{-3}{2} = \frac{-5}{13}$$

$$\frac{15}{26} \times \frac{-2}{3} = \frac{-5}{13}$$



Class / Homework

Practice Problems

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3ace

4bdf

8

9 a, c, e

11a

12bdf

17 a, b, c, d

18 a

Fraction Rap

Write out the questions and then show all work to get to the answer.

