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**.

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

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

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

Determine the sign of each quotient

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

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

c) $7.8 \div 3.6$

Strategy 1: Common Denominators

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

Step 1) Find a common denominator

$$= \left(\frac{-3x2}{4x2}\right) \div \left(\frac{-7}{8}\right)$$

$$= \left(\frac{-6}{8}\right) \div \left(\frac{-7}{8}\right)$$

$$= \frac{6}{7}$$

$-\frac{3}{4} \times \frac{8}{-7}$

$\frac{-24}{-28}$

$\frac{6}{7}$

Now since the denominators are the same (8) will always equal 1.
(Is that needed? NO)

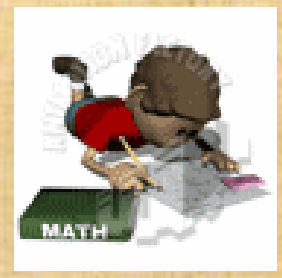
Step 2) Divide Numerator by Numerator

$$= \frac{-6}{-7}$$

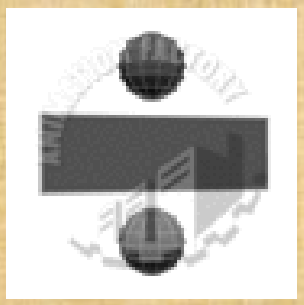
$$= \frac{6}{7}$$

You Try

$$\frac{6}{7} \div \left(\frac{-1}{3}\right)$$



Dividing Fractions

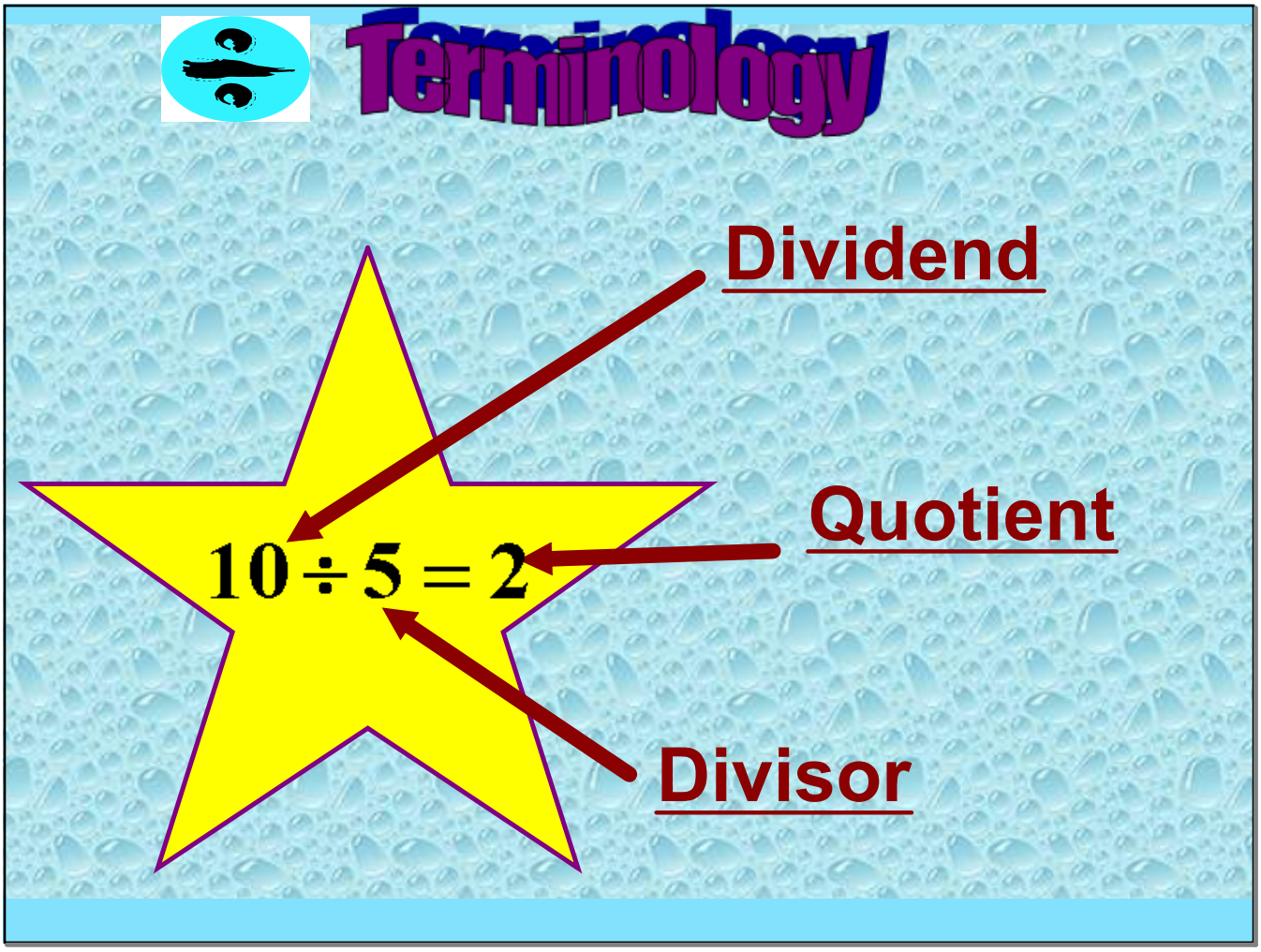


Reciprocal

- 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 !!

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


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


Terminology
Dividend
Quotient
Divisor
10 ÷ 5 = 2

Express division as

multipication by multiplying

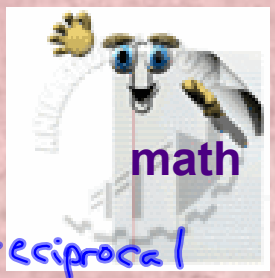
the dividend by the reciprocal

of the divisor !!

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

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

Try These !!



Dividing #1

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

$$= \frac{32}{35}$$

#2

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

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

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

#3

$$2\frac{1}{4} \div \frac{5}{1} = \frac{9}{4} \times \frac{1}{5}$$

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

Class / Homework

Practice Problems

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