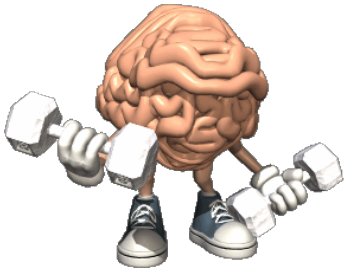
Curriculum Outcome

N1: Demonstrate an understanding of rational numbers by: comparing and ordering rational numbers; solving problems that involve arithmetic operations on rational numbers.

Student Friendly:
“Dividing fractions and decimals "



Warm-Up

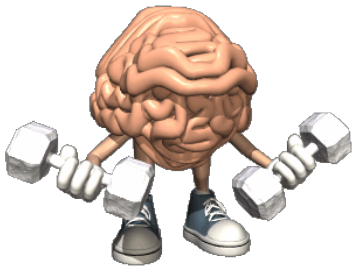
Evaluate the following expressions:

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

2) $(-4.55)(7.28)$

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

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



Warm-Up

Evaluate the following expressions:

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

$\frac{-44}{24} - \frac{15}{24} + \frac{1}{4}$

$\frac{-59}{24} + \frac{1}{4}$

$\frac{-59}{24} + \frac{6}{24}$

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

2) $(-4.55)(7.28)$

$= -33.124$

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

$= \frac{2}{21}$

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

$\left(\frac{-5}{\cancel{15}\,4}\right)\left(\frac{-7}{\cancel{3}\,1}\right)$

$\left(\frac{-5}{4}\right)\left(\frac{-7}{1}\right)$

$= \frac{35}{4}$

$= 8\,3/4$

Section 3.5

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**.

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

Determine the sign of each quotient

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

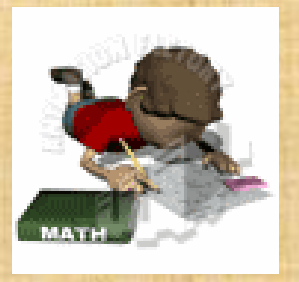
+

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

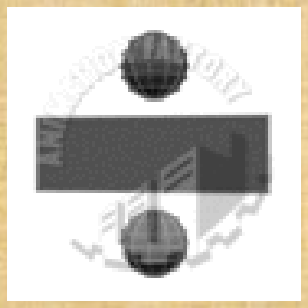
−

c) $7.8 \div 3.6$

+



Dividing Fractions



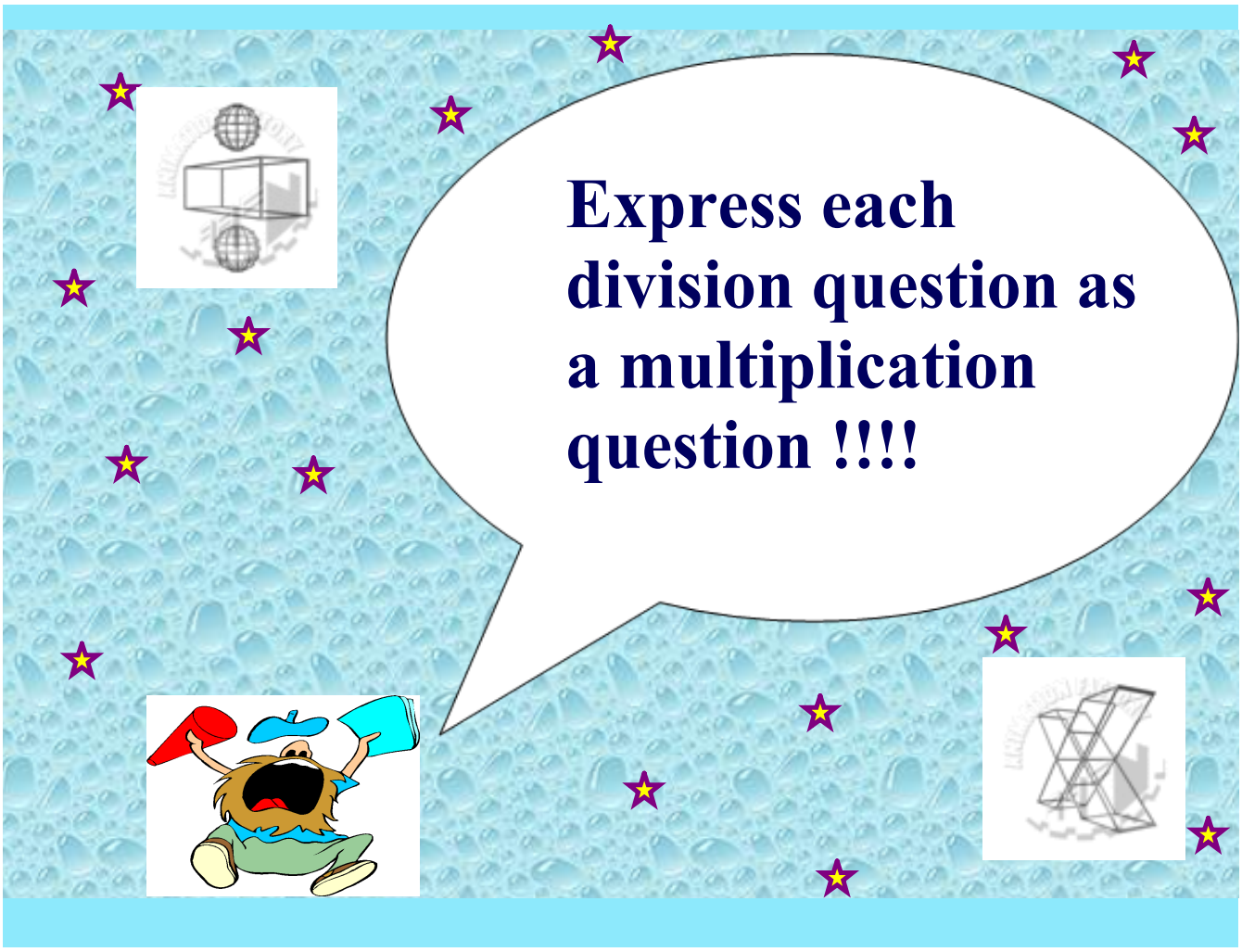
Reciprocal

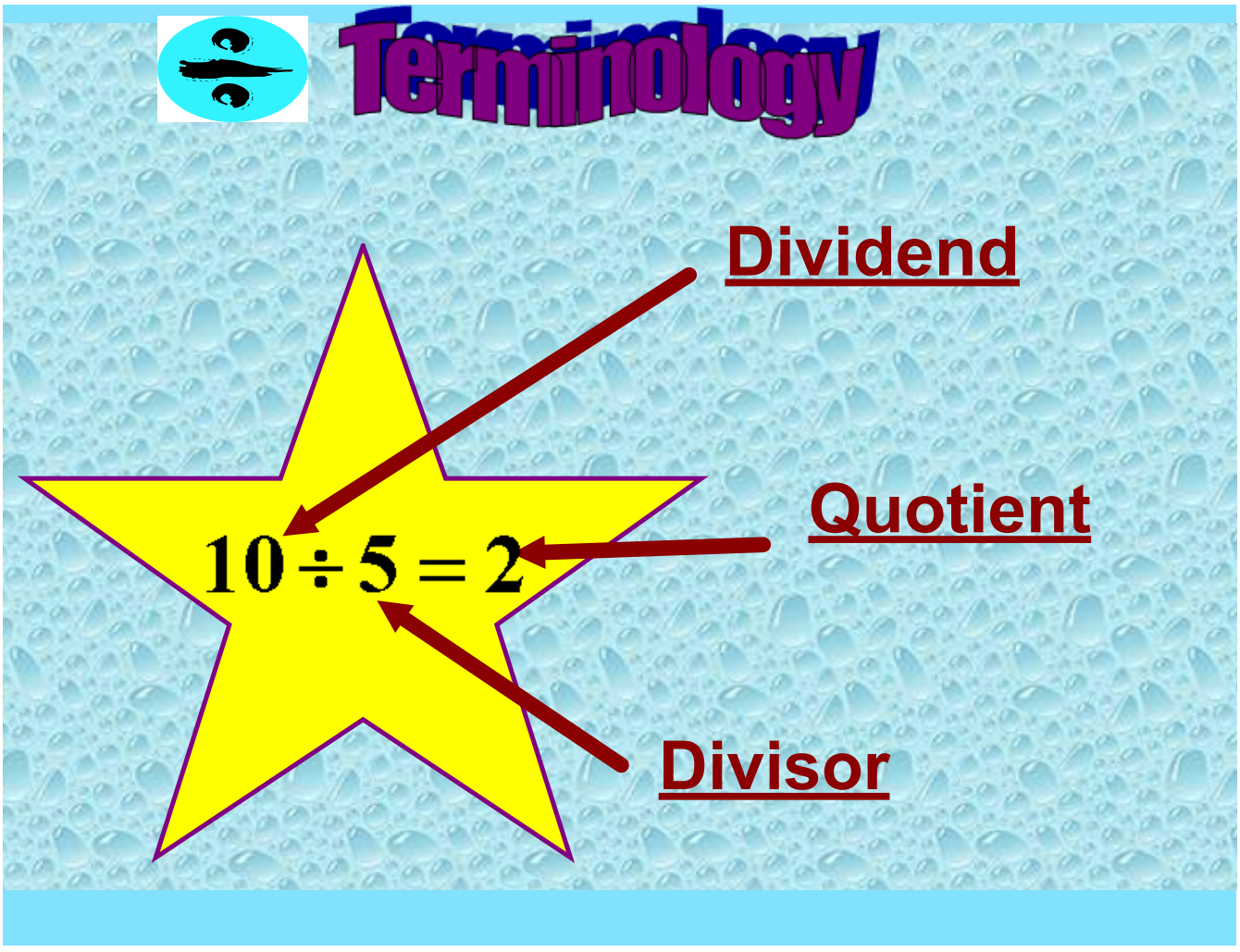
- Every non-zero fraction has a reciprocal.
- Fractions with a denominator of "0" are undefined. $\left(\frac{6}{0}\right)$
- To find the reciprocal of a fraction, you simply flip the fraction !!

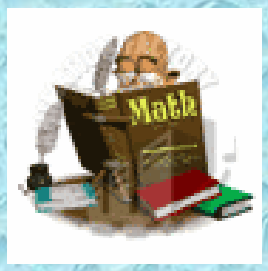
$\frac{4}{5}$ $\frac{5}{4}$ reciprocal

reciprocal

$-\frac{2}{3} \rightarrow -\frac{3}{2}$


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


Terminology
Dividend
Quotient
Divisor
10 ÷ 5 = 2



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

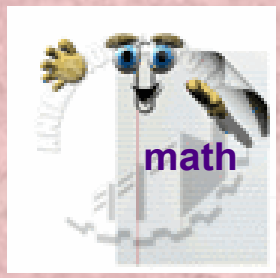
http://www.youtube.com/watch?v=80WArGwAjt8&feature=related why to flip and multiply?

http://www.youtube.com/watch?v=05rL51fIamk&feature=channel fraction rap

http://www.youtube.com/watch?v=OGUaN-F80NA&NR=1

http://www.youtube.com/watch?v=7GaeC4lPaSo

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

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

$$\frac{9}{4} \div \frac{5}{1}$$

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

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

$-3\frac{1}{5} \div \left(-2\frac{4}{7}\right)$

$\left(\frac{-16}{5}\right) \div \left(\frac{-18}{7}\right)$

$\left(\frac{-8}{\cancel{-16}}{5}\right) \times \left(\frac{-7}{9\cancel{18}}\right)$

$\frac{-8}{5} \times \frac{-7}{9}$

$= \frac{56}{45}$

$= 1\frac{11}{45}$

Class / Homework

Practice Problems

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3ace
4
8
9 a, c, e

11a
12bdf
17 a, c, d
18 a

Fraction Rap

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

Grade 9

Warm Up

Find the Quotient

Show work

$\frac{3}{5} \div \frac{-7}{15}$

$\frac{-4}{27} \div \frac{-2}{3}$

3) $10.4 \div -5.2$

Determine the missing number in the division statement.

Missing Dividend

Copy down

$(\underline{z}) \div 4 = 3$

Think:
Division is the inverse of **Multiplicatio**

To Solve for Missing Dividend
take Divisor X Quotient

$(\underline{z}) = 3 \times 4$

$(z) = 12$

Check work

$12 \div 4 = 3$ ✓

To Solve for Missing Dividend
take Divisor X Quotient

Now with Rational #s $x \div 5 = 12$

$x = 12 \times 5$

$x = 60$

You Try

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

$(\ ) = \frac{3}{7} \times \frac{5}{11}$

$(\ ) = \frac{15}{77}$

Check Work

$\frac{15}{77} \div \frac{5}{11}$

$\frac{3\cancel{15}}{7\cancel{77}} \times \frac{\cancel{11}^{1}}{\cancel{5}}$

$\frac{3}{7} \times \frac{1}{1}$

$= \frac{3}{7}$

B) $\_\_\_\_ \div 12.6 = 4.2$

$(\_\_\_\_) = 4.2 \times 12.6$

$(\_\_\_\_) = 52.92$

Check Work

$52.92 \div 12.6 = 4.2$

Determine the missing number in the division statement.

Copy Down

Missing Divisor

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

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

To solve for missing Divisor
take Dividend ÷ Quotient

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

$(\ ) = \frac{15}{-5}$

Check Work $(\ ) = -3$

You Try $15 \div (x) = 5$

$x = \frac{15}{5} = 3$

1) $-2.5 \div (x) = 5$

$-2.5 \div 5 = -0.5$

Check Work

$-2.5 \div -0.5 = 5$ ✓

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

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

$= \frac{-12^{4}}{-7\,21} \times \frac{8}{5} = \frac{-32}{35}$

Check Work

$\frac{-12}{21} \div \frac{-96}{105}$

$\frac{-12^{1}}{1\,21} \times \frac{105^{5}}{-96_{8}}$

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

$= \frac{5}{8}$

Class / Homework

Practice Problems

Page 134-136

3ace

4

8

Fraction Rap

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