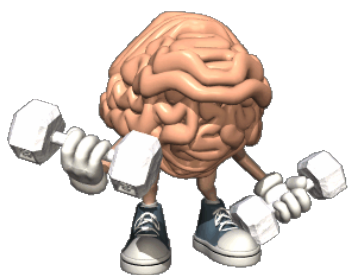


## **Curriculum Outcome**

**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 "**

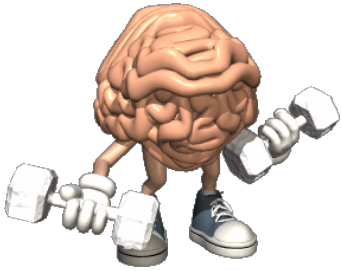


# Warm-Up

Evaluate the following expressions:

3)  $\left(-\frac{22}{21}\right) \left(\frac{-7}{18}\right)$

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



# Warm-Up

Evaluate the following expressions:

$$3) \left(-\frac{22}{21}\right) \left(-\frac{7}{18}\right)$$

$$= \left(-\frac{11}{3}\right) \left(-\frac{1}{9}\right)$$

$$= \frac{11}{27}$$

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

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

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

$$= \frac{15}{2}$$

$$= 7\frac{1}{2}$$

# 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**.

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

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

Determine the sign of each quotient

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

+

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

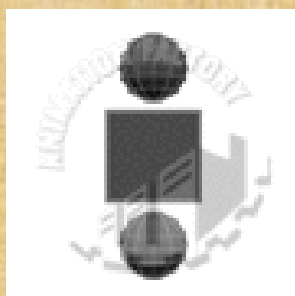
(-)

$$\text{c) } 7.8 \div 3.6 \quad (+)$$

Section: 3.5



# 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 !!

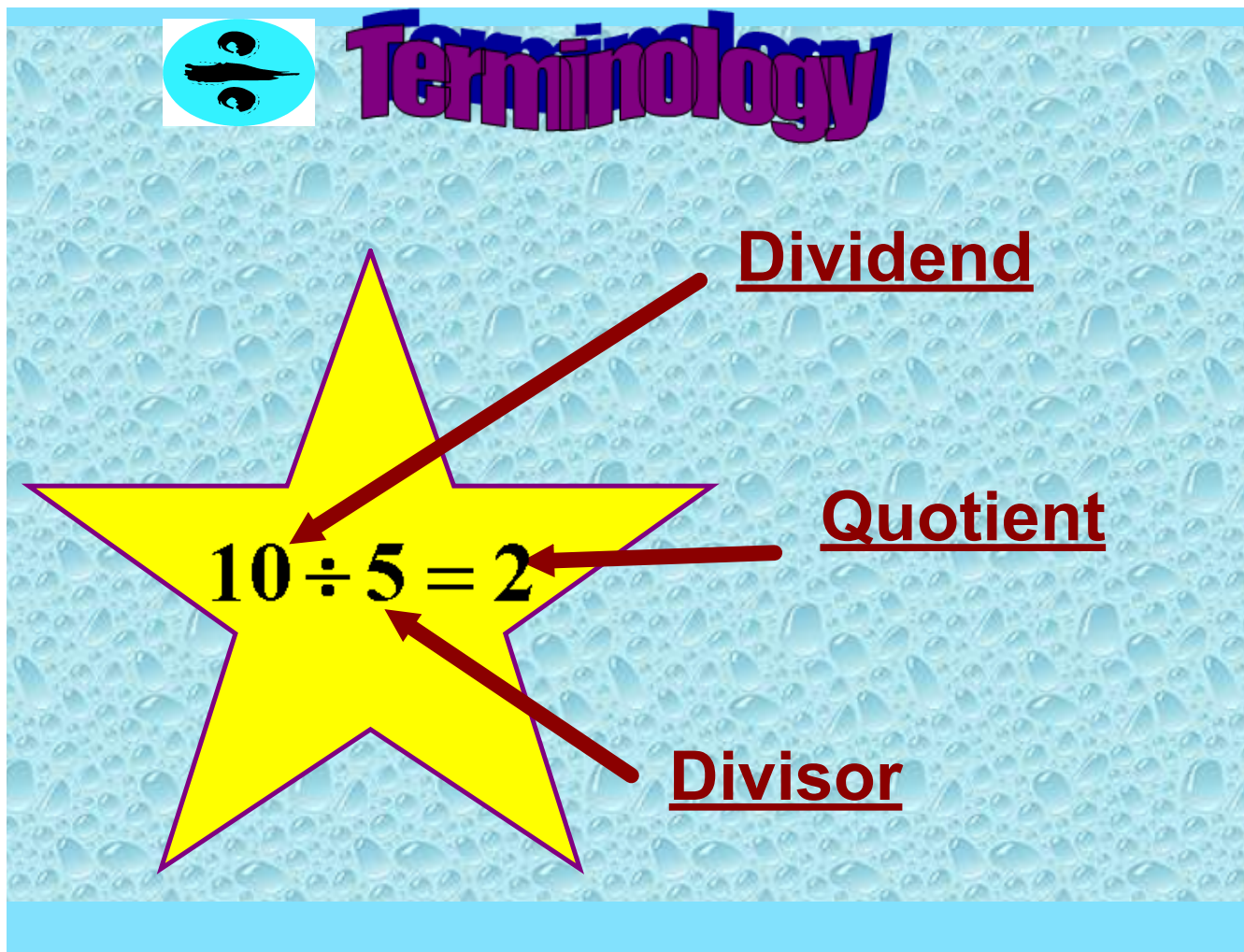
$$\frac{4}{5}$$

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



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





The diagram features a light blue background with a pattern of water droplets. At the top left is a circular icon containing a division symbol. To its right, 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 "Quotient" to the number 2, and one from "Divisor" to the number 5. The labels "Dividend", "Quotient", and "Divisor" are all underlined in red.

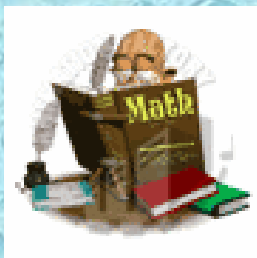
**Terminology**

Dividend

Quotient

Divisor

$10 \div 5 = 2$



## 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=05rL51flamk&feature=channel>



fraction rap

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



<http://www.youtube.com/watch?v=7GaeC4IPaSo>



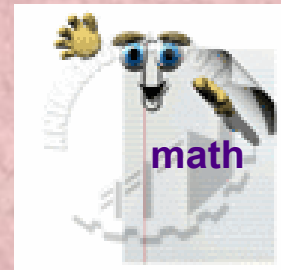
Try These !!

#1

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

$$\frac{4}{5} \times \frac{8}{7}$$

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



#2

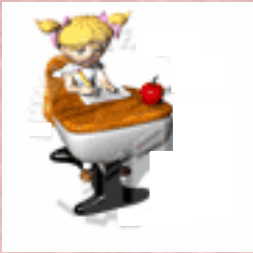
$$\frac{1}{8} \div \frac{-6}{5}$$

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

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



#3



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

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

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

# *Class / Homework*

## Practice Problems

Page 134-136

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

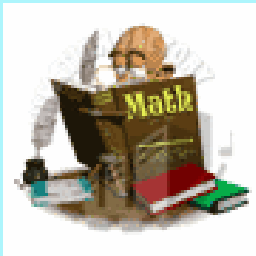
## Warm Up

Find the Quotient

Show work

$$\frac{3}{5} \div \frac{-7}{15} \quad | \quad \frac{-4}{27} \div \frac{-2}{3}$$

3)  $10.4 \div -5.2$





# Determine the missing number in the division statement.

## Missing Dividend

Copy down

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

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

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

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

$$(\underline{x}) = 12$$

Check work

$$12 \div 4 = 3 \quad \checkmark$$

$$(x) \div 4 = 3$$



Now with Rational #s

You Try

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

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

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

Check Work

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

$$\frac{3}{7} \times \frac{11}{5}$$

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

$$= \frac{3}{7}$$

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

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

$$\underline{x} = 4.2 \times 12.6$$

$$\underline{x} = 52.92$$

Check Work

$$52.92 \div 12.6 = 4.2$$

# Determine the missing number in the division statement.

Copy Down

Missing Divisor

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

Think:

**Quotient** is negative thus the BLANK must be what sign? \_\_\_\_\_

To solve for missing Divisor

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

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

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

Check Work

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



$$15 \div (x) = 5 \quad x = \frac{15}{5}$$

You Try

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

$$x = -\frac{2.5}{5}$$

$$x = -0.5$$

$$\bullet 2) \quad \left(\frac{-4}{7}\right) \div (x) = \frac{32}{35}$$

$$x = \frac{-4}{7} \cdot \frac{35}{32}$$

$$x = \frac{-4}{7} \times \frac{5}{8}$$

$$x = \left(-\frac{1}{1}\right) \left(\frac{5}{8}\right)$$

Check Work

$$x = -\frac{5}{8}$$