

LEARNING OBJECTIVE: We will divide integers. (G7M2L9)

CONCEPT DEVELOPMENT:

Recall the relationship between multiplication and division

\times & \div are opposite.

ex.
 $2 \times 3 \div 3 = 2$
 $a \times b \div b = a$

Multiplication Problem	Related Division Problem
$\checkmark 9 \times 4 = 36 \checkmark$ or $4 \times 9 = 36$	$\cancel{36} \div \cancel{9} = 4$ or $36 \div 4 = 9$
$3 \times (-8) = -24$ pos. \times neg. or = neg. $(-8) \times 3 = -24$	$-24 \div 3 = -8 \leftarrow$ DIFF SIGNS $-24 \div -8 = 3 \leftarrow$ SAME SIGNS
$(-5) \times (-9) = 45$ neg. \times neg. or = pos. $(-9) \times (-5) = 45$	$45 \div (-5) = -9$ DIFF SIGNS $45 \div (-9) = -5$ DIFF SIGNS

RULES FOR DIVISION	
When you divide integers with the SAME SIGN , the result is POSITIVE	When you divide integers with DIFFERENT SIGNS , the result is NEGATIVE
<u>Examples:</u> $-60 \div (-5) = 12$ $63 \div 7 = 9$ $-24 \div -12$ $-(3 \div -21) = -(-\frac{3}{21}) = \frac{1}{7}$	<u>Examples:</u> $-52 \div 13 = -4$ $16 \div -2 = -8$ $-12 \div 24$ $-(-36 \div -3) = -(12)$

$\frac{-45}{5} = \frac{45}{-5} = -\frac{45}{5}$ All different ways to write -9

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GUIDED PRACTICE:**Steps for Dividing Integers**

1. Identify the sign of the dividend and divisor.
- 2a. If the dividend and divisor are the same sign, the quotient is positive.
- 2b. If the dividend and divisor are different signs, the quotient is negative

<p>POSITIVE $-36 \div (-9) = 4$</p>	<p>$-88 \div (-4) = 22$</p> $\begin{array}{r} 22 \\ 4 \overline{) 88} \end{array}$
<p>NEG. $56 \div (-8)$ *</p> $\begin{array}{r} -7 \\ \frac{56}{-8} \end{array}$	<p>NEG. $21 \div (-7)$ *</p> $\begin{array}{r} 21 \\ -7 \end{array} \quad -3$
<p>NEG. $-50 \div 10$ *</p> $\frac{-50}{10} = -5$	<p>$-56 \div 4$ *</p> $\frac{-56}{4} = -14$
<p>$4 \div (-8)$</p> $\frac{4}{-8} = -\frac{1}{2}$	<p>NEG. $6 \div (-18)$</p> $\frac{6}{-18} = \frac{1}{-3} = -\frac{1}{3}$
<p>$-(54 \div 6)$ $-(9)$ $= -9$</p>	<p>$-(9 \div 3)$ -3</p>

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INDEPENDENT PRACTICE:**Steps for Dividing Integers**

1. Identify the sign of the dividend and divisor.
- 2a. If the dividend and divisor are the same sign, the quotient is positive.
- 2b. If the dividend and divisor are different signs, the quotient is negative

$35 \div (-5)$	$-132 \div (-11)$
$\frac{35}{-5} = -7$	$\frac{-132}{-11} = 12$
$6 \div (-1)$	$-65 \div 13$
$\frac{6}{-1} = -6$	$\frac{-65}{13} = -5$
$-105 \div 7$	$-168 \div (-12)$
$\frac{-105}{7} = -15$	$\frac{-168}{-12} = 14$
$6 \div (-6)$	$60 \div 12$
$\frac{6}{-6} = -1$	$\frac{60}{12} = 5$
**challenge problem! $-(-42 \div 7)$	$-7 \div 28$
$= \left(\frac{-42}{7} \right) = -(-6)$ $= 6$	$\frac{-7}{28} = -\frac{1}{4}$

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ACTIVATING PRIOR KNOWLEDGE:

We know that writing fractions is the same as dividing. Rewrite each division problem as a fraction and evaluate the expression.

$12 \div 4$	$15 \div 3$
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CLOSURE:

Find the quotient for each expression below and come to a conclusion about division that results in numbers other than integers:

A. $-2 \div 5$

B. $2 \div (-5)$

C. $-(2 \div 5)$

TEACHER NOTES:

Maybe give the HW from lesson 12 ENY for HW for students?