

TOPIC: DIVIDING INTEGERS

Dividing Integers

◆ Because multiplication & division are related, the same sign rules for multiplication also apply to division.

► Recall: When dividing, check your answer by multiplying $\text{quotient} \times \text{divisor}$ & seeing if it equals the *dividend*.

Multiplication	Division	
Multiplying or dividing integers with the same sign results in a positive .		
$(+)(+) = +$	$\frac{(+)}{(+)} =$	$\frac{18}{3} =$
$(-)(-) = +$	$\frac{(-)}{(-)} =$	$\frac{-18}{-3} =$
Multiplying or dividing integers with different signs results in a negative .		
$(+)(-) = -$	$\frac{(+)}{(-)} =$	$\frac{18}{-3} =$
$(-)(+) = -$	$\frac{(-)}{(+)} =$	$\frac{-18}{3} =$

◆ All division properties for whole numbers apply to integers. Remember that when dividing, _____ matters.

EXAMPLE

Find the quotient.

(A) $\frac{0}{-8}$

(B) $100 \div 2 \div -1$

(C) $\frac{-4}{0}$

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PRACTICE

Divide.

(A) $\frac{-24}{-6}$

(B) $-6 \overline{)126}$

(C) $\frac{-16}{1}$

Recall

Same Sign

$$\frac{(+)}{(+)} = + \quad \frac{(-)}{(-)} = +$$

Different Signs

$$\frac{(+)}{(-)} = - \quad \frac{(-)}{(+)} = -$$

(Division Sign Rules)

PRACTICE

Translate each phrase, then simplify.

(A) The quotient of -42 and 6

(B) 300 divided by -3

EXAMPLE

Evaluate the following for the given replacement values: $x = 15$, $y = 3$

(A) xy

(B) $\frac{x}{y}$

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PRACTICE

Translate each phrase to an algebraic expression. Use x to represent "a number."

(***A***) Divide a number by -16

(***B***) The product of -5 and a number

PRACTICE

If I owe \$480 on a loan that will be paid in equal installments over 6 months, what will be the amount charged each month?

TOPIC: DIVIDING INTEGERS**TOPIC RESOURCE: Properties of Division**

PROPERTIES OF DIVISION			
Name	Description	Rule	Example
<i>1 Properties</i>	Any non-zero number divided by itself is 1 .	$\frac{a}{a} = 1$	$\frac{5}{5} = 1$
	Any number divided by 1 is that same number.	$\frac{a}{1} = a$	$\frac{5}{1} = 5$
<i>0 Properties</i>	Zero divided by any number is zero .	$\frac{0}{a} = 0$	$\frac{0}{5} = 0$
	Any number divided by zero is undefined .	$\frac{a}{0}$ is undefined	$\frac{5}{0}$ is undefined
<i>Same Sign</i>	Dividing integers with the same sign results in a positive .	$\frac{(+)}{(+)} = +$	$\frac{18}{3} = 6$
		$\frac{(-)}{(-)} = +$	$\frac{-18}{-3} = 6$
<i>Different Signs</i>	Dividing integers with different signs results in a negative .	$\frac{(+)}{(-)} = -$	$\frac{18}{-3} = -6$
		$\frac{(-)}{(+)} = -$	$\frac{-18}{3} = -6$