Integers: Division

Dividing with like signs

When dividing two integers, **if the signs of the two integers are the same**, the quotient will be **positive**.

A positive integer divided by a positive integer results in a positive number.

A negative integer divided by a negative integer results in a positive number.

Examples:

45 ÷ 9 = 5 (-15) ÷ (-5) = 3

TRY: 48 ÷ 8 = _____ (-56) ÷ (-7) = _____

Dividing with different signs

When dividing two integers, **if the signs of the two integers are different**, the quotient will be **negative**.

A positive integer divided by a negative integer yields a negative number.

A negative integer divided by a positive integer yields a negative number.

Examples:

(-21) ÷ 7 = -3 40 ÷ (-5) = -8

TRY: (-32) ÷ 8 = _____ 54 ÷ (-9) = _____

Remember:

The quotient of any integer and 0 is undefined. 5 ÷ 0 is undefined -5 ÷ 0 is undefined

The quotient of 0 and any integer is 0. 0 ÷ 5 = 0 0 ÷ -5 = 0

The fraction bar serves as a grouping symbol. This means one performs all the operations above the bar separately from the operations below the bar before combining the answer. The fraction bar also means division. So, the final operation to perform after operations have been completed on the top (the numerator) and the bottom (the denominator) is division.

TRY: Evaluate each of the following expressions

$\frac{-60}{5}$ (-18) ÷ (-3) $\frac{54}{9}$ $\frac{56}{-7}$

$\frac{(-5)(-8)}{4}$ $\frac{4+(-16)}{4}$ $\frac{-8+(2)(-5)}{-6-3}$ $\frac{[(-3)^2-1](-4)}{-12+(-4)}$