

## Law of signs for addition / subtraction

- (1) When adding or combining two numbers with like signs, you add the absolute value of the two numbers and use the sign of the original numbers for the result.
- (2) When adding or combining two numbers with unlike signs, you subtract the absolute value of the number with the smallest absolute value **from** the absolute value of the number with the largest absolute value and use the sign corresponding to the number with the largest absolute value.

**Example:**  $4 + (-8)$

**Solution:**

$$|4| = 4 \text{ (absolute value of 4)}$$

$$|-8| = 8 \text{ (absolute value of -8)}$$

$$8 - 4 = 4 \text{ (difference of the two absolute values)}$$

Since the absolute value of -8 is larger than the absolute value of 4, we use the sign of -8 in our result.

**Answer:**  $4 + (-8) = -4$

- (3) For subtraction, the problem can be changed to an addition problem and rule-1 and rule-2 above can be applied.

## Law of signs for Multiplication / Division

- (1) When two numbers with like signs are multiplied or divided the result is always positive.
- (2) When two numbers with different signs are multiplied or divided the result is always negative.