Integers: Addition

Adding with like signs

When adding two integers, **if the signs of the two integers are the same**, add the absolute values of the integers and give the sum the sign of the original integers.

Examples: 5 + 9 = ?   5 added to 9 is 14.   The sum will be positive.   5 + 9 = 14

-3 + (-5) = ? Think of this as adding 3 + 5, then give the sum the - sign.   -3 + (-5) = -8

Another way of thinking: One can think of adding two integers with same signs as counting how many positive items or how many negative items you have. For example, 5 + 9 would be 5 positive items plus 9 positive items for a total of 14 positive items. -3 + (-5) would be 3 negative items plus 5 negative items for a total of 8 negative items, or -8.

TRY: 7 + 9 = _____   -6 + (-3) = _____

Adding with different signs

When adding two integers, **if the signs of the two integers are different**, subtract the smaller absolute value from the larger absolute value (take the difference), and give the sum the sign of the original integer with the largest absolute value.

Example: -3 + 7 = ?   The | -3 | is 3. The | 7 | is 7. The difference between 7 and 3 (on the number line) is 4. Since 7 has the largest absolute value and the sign of the original original 7 was positive, the sign of the answer is positive.
             -3 + 7 = 4

8 + (-13) = ?   The | 8 | is 8. The |-13| is 13. The difference between 8 and 13 (on the number line) is 5. Since -13 has the largest absolute value and the sign of the original 13 was negative, the sign of the answer is negative.
             8 + (-13) = -5

Another way of thinking: One can think of adding two integers with different signs as matching up one negative with one positive and seeing how many of one type is left over. Visualize 8 positively-charged balls and 13 negatively-charged balls being put together. The 8 positively charged balls will match up with 8 of the 13 negatively charged balls. This leaves 5 negatively-charged balls.
So: 8 + (-13) = -5

Yet another way of thinking: One can think of adding two integers with different signs as working with money. I have 8 dollars and now I owe 13 dollars. I am 5 dollars in debt. So: 8 + (-13) = -5

TRY: 6 + (-10) = _____   -5 + 9 = _____

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NOTE: It is extremely important for you to be able to quickly add two integers together in your mind.

TRY: Complete the following as quickly as you can.

1)	3 + 9	_____
2)	6 + (-3)	_____
3)	(-7) + (-7)	_____
4)	(-6) + 8	_____
5)	(-12) + 1	_____
6)	(-3) + (-8)	_____
7)	(-12) + 1 + (-6) + 8	_____
8)	(-4) + (-7) + (-5) + 7	_____

9)	7 + 3	_____
10)	9 + 9	_____
11)	(-3) + (-4)	_____
12)	(-6) + 12	_____
13)	(-4) + (-7)	_____
14)	(-5) + 7	_____
15)	(-6) + 12 + 6 + (-3)	_____
16)	(-13) + (-18) + 32	_____

TRY:

DJ has $175 in a checking account. A check was written for $82 and a deposit of $35 was made. What is the resulting balance?

The temperature one morning was -18⁰. By 3:00 p.m., the temperature had increased by 53⁰. What was the temperature at 3 p.m.?