

Check Your Answers on Adding Integers!

There are a number of methods used to teach operations with integers and eventually operations with all real numbers from movement on the number line to memorizing specific rules. A more visual approach has been presented here, using students' understanding that being "in the red" indicates an amount owed and being "in the black" indicates a positive amount available for use, the preferred bottom line in business. Based on these concepts, a black chip or circle will represent +1 and a red chip or circle will represent -1. Manipulatives such as checkers can easily be used to mirror the processes presented. Using this visual approach, it is possible to determine the sum without memorizing rules.

1. 0

Regroup using the Commutative Property:

$$\underbrace{(-1) + (-1) + (-1) + (-1) + (-1)}_{-5} + \underbrace{(+1) + (+1) + (+1) + (+1) + (+1)}_{+5} = \underbrace{(-1) + (+1)}_{-1+1=0} + \underbrace{(-1) + (+1)}_{-1+1=0} + \underbrace{(-1) + (+1)}_{-1+1=0} + \underbrace{(-1) + (+1)}_{-1+1=0} + \underbrace{(-1) + (+1)}_{-1+1=0} = 0$$

2. -6

$$\underbrace{(-1) + (-1) + (-1)}_{-3} + \underbrace{(-1) + (-1) + (-1)}_{-3} = \underbrace{(-1) + (-1) + (-1) + (-1) + (-1) + (-1)}_{-6}$$

Nothing eliminates those negatives!
You just "owe" more....

3. 2

$$\underbrace{(-1) + (-1)}_{-2} + \underbrace{(+1) + (+1) + (+1) + (+1)}_{+4} = \underbrace{(-1) + (+1)}_{-1+1=0} + \underbrace{(-1) + (+1)}_{-1+1=0} + (+1) + (+1) = 2$$

Continue to regroup using the Commutative Property.

4. -5

$$\underbrace{(+1)}_{+1} + \underbrace{(-1) + (-1) + (-1) + (-1) + (-1) + (-1)}_{-6} = \underbrace{(+1) + (-1)}_{1+(-1)=0} + (-1) + (-1) + (-1) + (-1) + (-1) = -5$$

5. 2

$$\underbrace{(-1)}_{-1} + \underbrace{(+1) + (+1)}_{+2} + \underbrace{(-1) + (-1) + (-1)}_{-3} + \underbrace{(+1) + (+1) + (+1) + (+1)}_{+4} = \underbrace{(-1) + (+1)}_{-1+1=0} + \underbrace{(+1) + (-1)}_{1+(-1)=0} + \underbrace{(-1) + (+1)}_{-1+1=0} + \underbrace{(-1) + (+1)}_{-1+1=0} + (+1) + (+1) = 2$$

6. -20 Can you mentally picture those positives and negatives, combining as you regroup, without actually seeing those "chips"?

7. 20 Remember that *absolute value* is the distance a number is from zero on the number line and distance is always positive so $|-10| = 10$ and $|10| = 10$.

8. 14 First, take the absolute value of those numbers and then combine: $|5| + |(-6)| + |-7| + 8 = 5 + (-6) + 7 + 8$

9. 5 You could also use the Commutative Property to combine the positive numbers and then the negative numbers rather than add the numbers from left to right: $12 + (-10) + (-5) + 8 = 12 + 8 + (-10) + (-5) = 20 + (-15) = 5$

10. -1 Well done!

Perfect score? Yes! You've got this!! You're ready to move on to the next section!!!