

Mid-Chapter Review

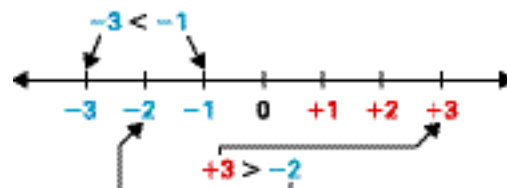


Frequently Asked Questions

Q: How do you compare integers?

A: Look at a number line.

The integer on the left is less than the integer to its right. The $<$ and $>$ symbols are used to compare their positions on the number line.



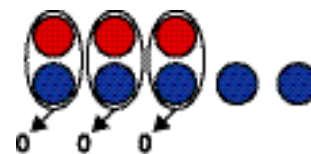
Q: What is the zero principle?

A: The zero principle states that you can add $(+1)$ and (-1) , in either order, and get the same result: 0. In other words, if you have one thing and lose it, you have nothing left.

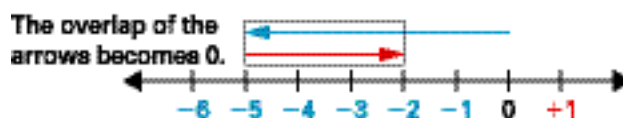
The zero principle can be used to show that any two opposite integers add to 0.

Q: How do you add two integers, such as $(-5) + (+3)$?

A1: Use a counter model. Based on the zero principle, you can add each pair of $+1$ and -1 counters to get 0. This model shows that $(-5) + (+3) = (-2)$.



A2: Use a number line model. Based on the zero principle, you can add the overlap of positive and negative arrows to get 0. This model shows that $(-5) + (+3) = (-2)$.



Q: How do you add $(-38) + (+51) + (-83) + (+64)$?

A1: Find the sum of all the positive numbers and the sum of all the negative numbers. Decide if there are more negatives or more positives. Then calculate how many more.

$$\begin{aligned} & (-38) + (+51) + (-83) + (+64) \\ = & \boxed{(-38) + (-83)} + \boxed{(+51) + (+64)} \\ = & (-121) + (+115) \\ = & (-6) \end{aligned}$$

A2: Regroup and add parts.

$$\begin{aligned} & \boxed{(-38) + (+51)} + \boxed{(-83) + (+64)} \\ = & (+13) + (-19) \\ = & (-6) \end{aligned}$$

A3: Use a calculator with a sign change key.

Use the following key presses:

38 \pm/\mp + 51 \pm 83 \pm/\mp + 64 \pm

The answer is (-6) .

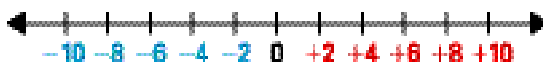
Practice Questions

- (6.1) 1. Describe how to use positive and negative integers in each situation.

	Situation	Words to use
a)	business	profit, loss
b)	temperature	above freezing, below freezing
c)	sports	Choose your own words.
d)	car travel	accelerate, decelerate



- (6.1) 2. What number matches each description? Use the number line to help you.



- a) 6 more than -8 c) 5 less than -4
b) 3 more than -9 d) 9 less than $+7$
- (6.1) 3. Use $<$ or $>$ to make each statement true.
a) (-5) (-10) c) (-20) 0
b) (-14) (-10) d) $(+5)$ $(+10)$
- (6.1) 4. Add. Draw a number line for each sum.
a) $(-5) + (-2)$
b) $(+2) + (-5)$
c) $(-1) + (+3) + (-4)$
d) $(+30) + (-20) + (-10)$

5. Add. Draw a counter model for each sum. (6.3)
a) $(+5) + (-2)$ c) $(-4) + (+5)$
b) $(-2) + (-5)$ d) $(-1) + (-3) + (+4)$

6. Complete each equation. (6.3)
a) $(-8) + \square = (-5)$
b) $(+2) + \square = 0$
c) $(-5) + \square + (+7) = (+12)$

7. Think about adding two integers. (6.3)
a) What must be true about the integers for the sum to be positive?
b) What must be true about the integers for the sum to be negative?

8. Anthony hiked uphill from a valley that was 45 m below sea level. After an hour, he was 100 m higher. How high was he above sea level? (6.4)

9. Calculate each sum. (6.4)
a) $(-150) + (+50)$ b) $(-110) + (-20)$

10. Show how to add these integers. Keep the arithmetic as simple as possible. (6.5)
 $(-34) + (+17) + (-20) + (-15) + (-2) + (+18)$

11. Calculate each sum. Use a calculator to check your answer. (6.5)
a) $(+11) + (-26) + (-15)$
b) $(-33) + (-20) + (+12)$

12. Georgina invested \$1125 in a mutual fund in January. The monthly increases or decreases in the value of the fund are given below. Calculate the value of Georgina's investment at the end of June. (6.5)

Month	Jan.	Feb.	Mar.	Apr.	May	June
Value change (\$)	-150	-55	+137	+91	-2	+8