

Adding Integers

opposite integers

- two integers with the same numeral but different signs
- 5 and -5 are opposite integers

zero principle

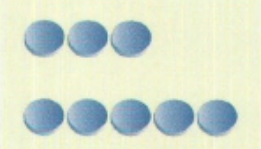
- the sum of opposite integers is zero
- $3 + (-3) = 0$ is an example

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Example 1: Interpret Integer Chips

Each red chip represents $+1$. Each blue chip represents -1 . Interpret each set of integer chips. Then, write and solve the addition statement.

a)




-3
 -5

$$(-3) + (-5)$$

$$= -8$$

b)



-8
 $+2$

$$(-8) + (+2)$$

$$= -6$$

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Example 2: Add Integers

Find each sum in two ways:

- using integer chips
- using a number line

a) $3 + 6$

b) $-2 + (-6)$

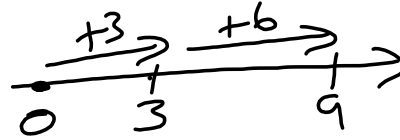
c) $5 + (-5)$

d) $7 + (-3)$

a) 000

0000000

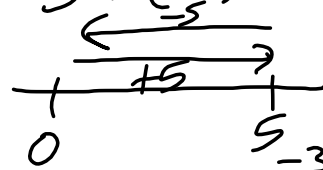
$3 + 6 = 9$



c) ~~0000000~~

~~0000000~~

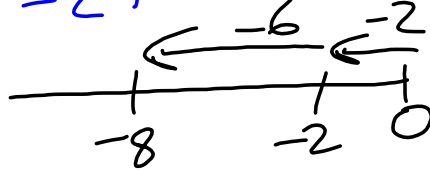
$5 + (-5) = 0$



b) 00

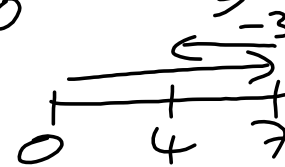
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$-2 + -6 = -8$



d) ~~0000000~~

~~0000~~ $7 + (-3) = 4$



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Example 3: Find Sums Mentally

Many sports use a plus/minus rating system to rate their players. Each goal scored by the team while a player is on the field is recorded as 1 and each goal against is recorded as -1 . Use mental math to determine each player's plus/minus rating on a field hockey team. Justify your answer.

Player	Goals For	Goals Against
Kelly	7	8
Husnia	5	3
Yan	5	10

Kelly $\rightarrow +7 + (-8) = -1$

Husnia $\rightarrow +5 + (-3) = 2$

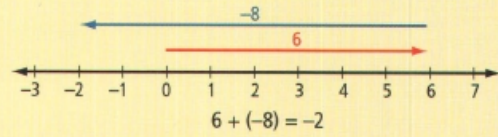
Yan $\rightarrow +5 + (-10) = -5$

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Key Ideas

- You can use integer chips to show the sum of integers. This textbook uses red for positive and blue for negative.

- You can also use an integer number line to show the sum of integers.



- If two integers in a sum have the same sign, add the two numerals and keep the sign the same.

$5 + 3 = 8$

I have 5 positives and then 3 more positives. That's 8 positives altogether.

$-4 + (-1) = -5$

I have 4 negatives and then 1 more negative. That's 5 negatives altogether.

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- If two integers in a sum have opposite signs, the result depends on the relative sizes of the integers.

$-4 + 7 = 3$

There are 3 more positives than negatives. The result is 3.

$6 + (-8) = -2$

There are 2 more negatives than positives. The result is -2.

