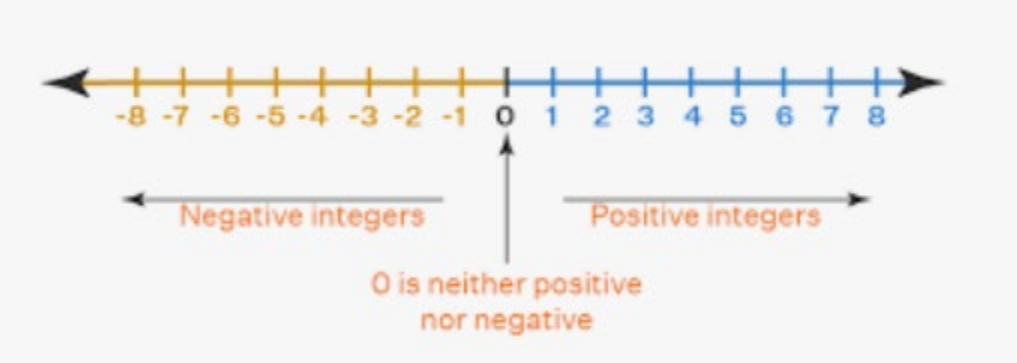
Operations with positive and negative numbers

Positive and negative numbers on the number line



Definition: The distance to zero for $(+4)$ and (-4) is the same and is called the "**absolute value**" of the number. It is just the number 4 without + or -.

Adding positive and negative integers. Open (remove) the brackets and then add – steps 1. and 2.

1. Removing the brackets around the numbers

   Read the minus sign before the number as "opposite" and the plus sign as "the same", meaning what is the number on the opposite or on the same side as the number in the brackets.

   $-\ (number) =$ " $the\ opposite\ of\ (the\ number)$"

   $+\ \ (number) =$ "$the\ same\ \ as\ (the\ mumber)$"

   $+(number) = (number)$ (the plus sign can be omitted)

Rule	Read	Example	Your example
$-(-a) = +a$	The opposite of $(-a) is + a$	$-(-9) = +9 = 9$	
$-(+a) = -a$	The opposite of $(+a)\ is -\ a$	$-(+3) = -3$	
$+(-a) = -a$	The same as $(-a)\ is -\ a$	$+(-11) = -11$	
$+(+a) = +a$	The same as $(+a)\ is +\ a$	$+(+7) = +7 = 7$	

   Important: " – " infront of the brackets changes the sign of the number, " + " keeps the sign the same

2. Adding positive and negative integers
   - same sign → Add absolute values → keep the sign
   - opposite sign → Subtract absolute values → keep the sign of the larger

Numbers	Operation	Result sign	Example
$(+)$ and $(+)$	**Add**	$(+)$, keep the sign	$(+1) + (+3) = 1 + 3 = 4$
$(-)$ and $(-)$	**Add**	$(-)$, keep the sign	$(-2) + (-5) = -2 - 5 = -7$
$(+)$ and $(-)$	**Subtract**	Larger integer's sign	$5 + (-11) = 5 - 11 = -6$
$(-)$ and $(+)$	**Subtract**	Larger integer's sign	$(-7) + (+17) = -7 + 17 = +10$