

# Adding/Subtracting Integers

2B

Positive

Negative

Examples:

$$3+7$$

$$-3-7$$

$$3-7$$

$$7-3$$

$$**3-(-7)$$

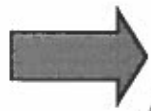
Rule #1 (same signs):

add the numbers  
keep the sign

Rule #2 (different signs):

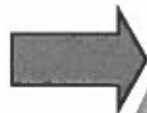
find the difference  
keep the sign of the  
bigger number

Signs are  
**SAME**



**"SIMPLY ADD"**

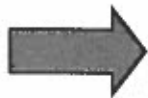
Add the numbers



**KEEP THE SIGN**

$$\begin{aligned}(-7) - 5 &= -12 \\ 4 + 3 &= 7\end{aligned}$$

Signs are  
**DIFFERENT**



**"FIND THE  
DIFFERENCE"**



Subtract the numbers

*(Largest – smallest)*



**Keep the sign of the  
LARGEST number**

$$(-7) + 2 = -5$$

*(-7) is **larger** so the  
answer is **negative***

## Adding Integers Song

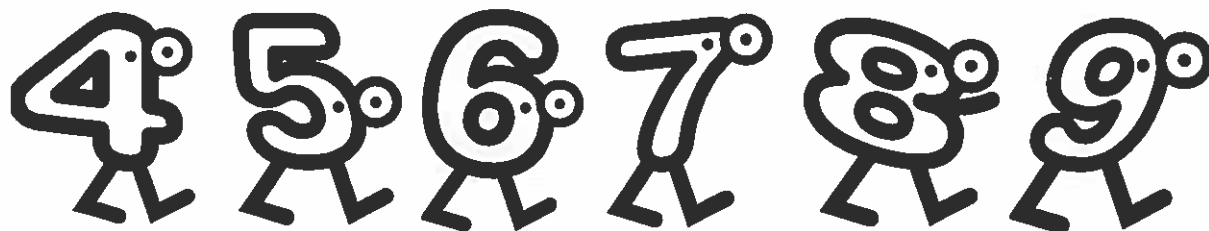
Adding Integers...Ready Begin!

A Negative, A Negative...It's a Negative

A Positive, A Positive...It's a Positive

A Positive, A Negative...Find the Difference,

Use the Sign of the Biggest One!



1) $(-12) + (-3) = -15$	2) $(-8) + (-6) = -14$
3) $8 + (-2) = 6$	4) $11 + (-4) = 7$
5) $(-2) + (-4) = -6$	6) $(-8) + 15 = 7$
7) $(-10) + 3 = -7$	8) $(-5) + 5 = 0$
9) $(-20) + (-18) = -38$	10) $(-16) + 12 = -4$
11) $(-10) - (-9) = -1$ $-10 + 9$	12) $(-5) - (-8) = 3$ $-5 + 8$
13) $15 - 22 = -7$	14) $19 - (-6) = 25$ $19 + 6$
15) $12 - (-3) = 15$ $12 + 3$	16) $8 - (-6) = 14$ $8 + 6$
17) $8 - (-2) = 10$ $8 + 2$	18) $11 - (-4) = 15$ $11 + 4$
19) $(-2) - 4 = -6$	20) $(-8) - 15 = -23$
21) $6 + (-18) + 3 = -9$	22) $35 + (-2) + (-7) = 26$
23) $14 + (-5) + 1 = 10$	24) $20 + (-5) + (-1) = 14$
25) $45 - (-15) - 2 = 58$ $45 + 15 - 2$	26) $15 - 32 - (-2) = -15$ $15 - 32 + 2$
27) $4 - (-3) - 7 = 0$ $4 + 3 - 7$	28) $55 - (-4) - 2 = 57$ $55 + 4 - 2$

Evaluate each expression if  $a = -8$ ,  $b = 12$ , and  $c = -4$ .

29) $5 + a = \underline{-3}$ $5 + (-8)$	30) $b + (-9) = \underline{3}$ $12 + (-9)$	31) $c + (-5) = \underline{-9}$ $-4 + (-5)$
32) $a + b = \underline{4}$ $-8 + 12$	33) $a + 0 = \underline{-8}$ $-8 + 0$	34) $b + c = \underline{8}$ $12 + (-4)$
35) $21 + c + b = \underline{29}$ $21 + (-4) + 12$	36) $a + 2 + c = \underline{-10}$ $-8 + 2 + (-4)$	

Solve each word problem.

37) A dolphin is 30 feet <u>below</u> the surface of the water. She <u>ris</u> es 23 feet and then <u>ris</u> es another 7 feet. If there are no other changes, where is the dolphin now?  $-30 + 23 + 7 = 0\text{ft}$ $\downarrow$ Sea level	38) A submarine starts its descent at -15 meters. It dives to -182 meters. How far did the submarine <u>descend</u> ? $\rightarrow$ range  $-182 - (-15) = -167\text{m}$ $-182 + 15$  SKIP
39) Andy had -\$45 in his checking account at the beginning of the week. At the end of the week he was paid \$30 for mowing the grass and \$25 for vacuuming the house. How much money does Andy now have in his checking account?  $-45 + 30 + 25 = \$10$	40) A submarine was situated 800 feet below sea level. If it ascends 250 feet, what is its new position?  $-800 + 250 = -550\text{ft}$
41) At Guadalupe Mountains State Park, Tom climbed <u>down</u> 314 feet, <u>up</u> 86 feet, and <u>down</u> 185 feet. What integer represents how far he was from where he started?  $-314 + 86 + (-185) = -413\text{ft}$	42) Jill went scuba diving. She dived to 33 feet below the surface and then came up 18 feet. How far from the surface was Jill?  $-33 + 18 = -15\text{ft}$

Evaluate each expression if  $p = -4$ ,  $r = 10$ , and  $s = -7$ .

43) $r - s = \underline{17}$ $10 - (-7) \rightarrow 10 + 7$	44) $p - s = \underline{3}$ $-4 - (-7) \rightarrow -4 + 7$	45) $s - r = \underline{-17}$ $-7 - 10$
46) $r - p - s = \underline{21}$ $10 - (-4) - (-7) \rightarrow 10 + 4 + 7$	47) $15 - p - r = \underline{9}$ $15 - (-4) - 10 \rightarrow 15 + 4 - 10$	

Solve each word problem.

48) The highest temperature ever recorded on Earth was $136^{\circ}\text{F}$ in Libya. The lowest temperature was $-129^{\circ}\text{F}$ in Antarctica. What is the range of the highest and lowest temperature on Earth? $136 - (-129) = 265^{\circ}\text{F}$ $136 + 129$	49) The Dead Sea's deepest part is 799 meters below sea level. A plateau to the east of the Dead Sea rises to about 1,340 meters above sea level. What is the difference between the deepest part of the Dead Sea and the top of the plateau? $1340 - (-799) = 2,139\text{ft}$ $1340 + 799$
50) The record high temperature for a certain U.S. state is $104^{\circ}\text{F}$ . The record low temperature for the same state is $-14^{\circ}\text{F}$ . What is the difference between the record high and low temperatures for this state? $104 - (-14) = 118^{\circ}\text{F}$ $104 + 14$	51) In 4 plays, the Tigers' football team gained 15 yards, gained 4 yards, lost 12 yards, and gained 8 yards. What was their net movement? $15 + 4 - 12 + 8 = 15\text{yds}$
52) The highest recorded temperature in Seymour was $120^{\circ}\text{F}$ on August 12, 1936. The lowest recorded temperature in Seminole was $-23^{\circ}\text{F}$ on February 8, 1933. What is the difference between these record temperatures? $120 - (-23) = 143^{\circ}\text{F}$	53) John opens a checking account with \$100. He writes a check for \$110. The bank charges an overdrawn fee of \$25. What is his account balance? $100 - 110 - 25 = -\$35$
54) At Natural Bridge Caverns, the North Cavern is 180 feet below the surface. The Fault Room is 230 feet below the surface. What is the change in feet from the North Cavern to the Fault Room? $-230 - (-180) = -50\text{ft}$ $-230 + 180$ SKIP	55) Mt. Everest, the highest elevation in Asia, is 29,028 feet above sea level. The Dead Sea, the lowest elevation, is 1,312 feet below sea level. What is the difference between these two elevations? $29,028 - (-1,312) = 30,340\text{ft}$ $29,028 + 1,312$

Interpret the following Models.

<p>56) <math>4 + 6 = 10</math></p>	<p>57) <math>-6 - 3 = -9</math></p>
<p>58) <math>-5 + 9 = 4</math></p>	<p>59) <math>-1 + 9 = 8</math></p>
<p>60) <math>-7 + 4 = -3</math></p>	<p>61) <math>-10 + 9 = -1</math></p>

Add and Model on the Number Line.

<p>62) <math>8 + (-2) = 6</math></p>	<p>63) <math>(-2) + (-4) = -6</math></p>
<p>64) <math>(-5) + 5 = 0</math></p>	<p>65) <math>(-8) + 15 = 7</math></p>
<p>66) <math>10 + (-4) = 6</math></p>	<p>67) <math>(-10) + 3 = -7</math></p>

Interpret the following Models.

<p>68) <math>4 - 8 = -4</math></p>	<p>69) <math>8 - 3 = 5</math></p>
<p>70) <math>2 - 7 = -5</math></p>	<p>71) <math>10 - 2 = 8</math></p>
<p>72) <math>4 - 7 = -3</math></p>	<p>73) <math>5 - 6 = -1</math></p>

Subtract and Model on the Number Line.

<p>74) <math>-1 - (-3) = 2</math> <math>-1 + 3</math></p>	<p>75) <math>(-2) - 3 = -5</math></p>
<p>76) <math>5 - (-4) = 9</math> <math>5 + 4</math></p>	<p>77) <math>-7 + (-2) = -9</math></p>
<p>78) <math>-8 - (-3) = -5</math> <math>-8 + 3</math></p>	<p>79) <math>-4 - 6 = -10</math></p>