

ADDITION OF INTEGERS

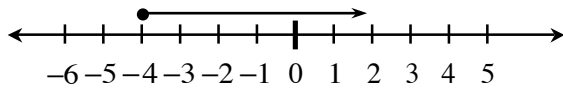
Students review addition of integers using two concrete models: movement along a number line and positive and negative integer tiles.

To add two integers using a number line, start at the first number and then move the appropriate number of spaces to the right or left depending on whether the second number is positive or negative, respectively. Your final location is the sum of the two integers.

To add two integers using integer tiles, a positive number is represented by the appropriate number of (+) tiles and a negative number is represented by the appropriate number of (-) tiles. To add two integers start with a tile representation of the first integer in a diagram and then place into the diagram a tile representative of the second integer. Any equal number of (+) tiles and (-) tiles makes “zero” and can be removed from the diagram. The tiles that remain represent the sum. For additional information, see the Math Notes box in Lesson 3.2.3 of the *Core Connections, Course 1* text.

Example 1

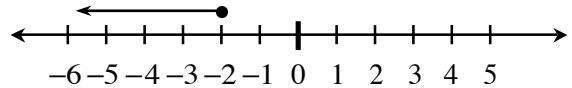
$$-4 + 6$$



$$-4 + 6 = 2$$

Example 2

$$-2 + (-4)$$



$$-2 + (-4) = -6$$

Example 3

$$5 + (-6)$$

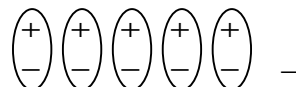
Start with tiles representing the first number.

+ + + + +

Add to the diagram tiles representing the second number.

+ + + + +
- - - - -

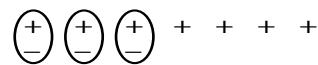
Circle the zero pairs.
-1 is the answer.



$$5 + (-6) = -1$$

Example 4

$$-3 + 7$$



$$-3 + 7 = 4$$

ADDITION OF INTEGERS IN GENERAL

When you add integers using the tile model, zero pairs are only formed if the two numbers have different signs. After you circle the zero pairs, you count the uncircled tiles to find the sum. If the signs are the same, no zero pairs are formed, and you find the sum of the tiles. Integers can be added without building models by using the rules below.

- If the signs are the same, add the numbers and keep the same sign.
- If the signs are different, ignore the signs (that is, use the absolute value of each number.) Subtract the number closest to zero from the number farthest from zero. The sign of the answer is the same as the number that is farthest from zero, that is, the number with the greater absolute value.

Example

For $-4 + 2$, -4 is farther from zero on the number line than 2 , so subtract: $4 - 2 = 2$. The answer is -2 , since the “4,” that is, the number farthest from zero, is negative in the original problem.

Problems

Use either model or the rules above to find these sums.

1. $4 + (-2)$
2. $6 + (-1)$
3. $7 + (-7)$
4. $-10 + 6$
5. $-8 + 2$
6. $-12 + 7$
7. $-5 + (-8)$
8. $-10 + (-2)$
9. $-11 + (-16)$
10. $-8 + 10$
11. $-7 + 15$
12. $-26 + 12$
13. $-3 + 4 + 6$
14. $56 + 17$
15. $7 + (-10) + (-3)$
16. $-95 + 26$
17. $35 + (-6) + 8$
18. $-113 + 274$
19. $105 + (-65) + 20$
20. $-6 + 2 + (-4) + 3 + 5$
21. $5 + (-3) + (-2) + (-8)$
22. $-6 + (-3) + (-2) + 9$
23. $-6 + (-3) + 9$
24. $20 + (-70)$
25. $12 + (-7) + (-8) + 4 + (-3)$
26. $-26 + (-13)$
27. $-16 + (-8) + 9$
28. $12 + (-13) + 18 + (-16)$
29. $50 + (-70) + 30$
30. $19 + (-13) + (-5) + 20$

Answers

- | | | | | | |
|--------|---------|---------|---------|--------|---------|
| 1. 2 | 2. 5 | 3. 0 | 4. -4 | 5. -6 | 6. -5 |
| 7. -13 | 8. -12 | 9. -27 | 10. 2 | 11. 8 | 12. -14 |
| 13. 7 | 14. 73 | 15. -6 | 16. -69 | 17. 37 | 18. 161 |
| 19. 60 | 20. 0 | 21. -8 | 22. -2 | 23. 0 | 24. -50 |
| 25. -2 | 26. -39 | 27. -15 | 28. 1 | 29. 10 | 30. 20 |