

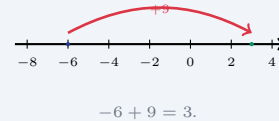
# Adding and Subtracting Integers

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / 18

## Quick Review and Helpful Hints

Same signs: add the absolute values and keep the shared sign. Different signs: subtract the smaller absolute value from the larger and take the sign of the larger. To subtract, add the opposite:  $a - b = a + (-b)$ .

▶ **Example:** Evaluate  $-6 - (-9)$ . **Work:** Rewrite subtraction as adding the opposite:  $-6 + 9$ . The signs differ, so subtract:  $9 - 6 = 3$ , and take the sign of the larger absolute value (positive). ★ **Answer:** 3



### Practice Problems

Add or subtract.

- |                |       |                 |       |
|----------------|-------|-----------------|-------|
| 1. $5 + (-3)$  | _____ | 8. $-2 - (-5)$  | _____ |
| 2. $-4 + (-6)$ | _____ | 9. $-10 + 4$    | _____ |
| 3. $-7 + 10$   | _____ | 10. $7 + (-7)$  | _____ |
| 4. $8 - 12$    | _____ | 11. $-3 - 8$    | _____ |
| 5. $-5 - 3$    | _____ | 12. $12 + (-5)$ | _____ |
| 6. $-9 + 9$    | _____ | 13. $-6 - (-2)$ | _____ |
| 7. $6 - (-4)$  | _____ | 14. $-8 + 15$   | _____ |

### Word Problems

15. At dawn the temperature was  $-9^{\circ}\text{F}$ . It rose  $18^{\circ}$  by noon. What was the noon temperature? \_\_\_\_\_
16. A submarine sits at  $-340$  feet, then rises 160 feet. What is its new depth? \_\_\_\_\_
17. An account is  $-\$47$  (overdrawn). After a  $\$62$  deposit, what is the balance? \_\_\_\_\_
18. A hiker at 200 feet descends 350 feet. What is the new elevation? \_\_\_\_\_



## Answer Keys

1.

2.

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### Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is The signs are different, so subtract the absolute values:  $5 - 3 = 2$ . The larger number, 5, is positive, so the answer is positive: 2. So the final answer is 2.

2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Same signs, so add the absolute values:  $4 + 6 = 10$ , and keep the shared negative sign:  $-10$ . So the final answer is  $-10$ .

3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Different signs: subtract  $10 - 7 = 3$ . The larger number, 10, is positive, so 3. So the final answer is 3.

4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite as  $8 + (-12)$ . Different signs:  $12 - 8 = 4$ , and the larger is negative, so  $-4$ . So the final answer is  $-4$ .

5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite as  $-5 + (-3)$ . Same signs:  $5 + 3 = 8$ , both negative, so  $-8$ . So the final answer is  $-8$ .

6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is These are opposites, so they cancel to 0. So the final answer is 0.

7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Subtracting a negative is the same as adding:  $6 - (-4) = 6 + 4 = 10$ . So the final answer is 10.

8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Subtracting a negative is adding:  $-2 - (-5) = -2 + 5 = 3$ . So the final answer is 3.

9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Different signs:  $10 - 4 = 6$ , and the larger number, 10, is negative, so  $-6$ . So the final answer is  $-6$ .

10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Opposites cancel:  $7 + (-7) = 0$ . So the final answer is 0.

11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Rewrite as  $-3 + (-8)$ . Same signs:  $3 + 8 = 11$ , both negative, so  $-11$ . So the final answer is  $-11$ .

12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Different signs:  $12 - 5 = 7$ , and the larger is positive, so 7. So the final answer is 7.

13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Subtracting a negative is adding:  $-6 + 2$ ; different signs give  $6 - 2 = 4$ , negative, so  $-4$ . So the final answer is  $-4$ .

14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Different signs:  $15 - 8 = 7$ , and the larger number, 15, is positive, so 7. So the final answer is 7.

15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Start at  $-9$  and add the rise:  $-9 + 18$ . Different signs give  $18 - 9 = 9$ , positive, so  $9^\circ\text{F}$ . So the final answer is  $9^\circ\text{F}$ .

16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Start at  $-340$  and add the rise:  $-340 + 160 = -180$  ft (still below the surface). So the final answer is  $-180$  ft.

17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Add the deposit to the balance:  $-47 + 62 = 15$ , so the balance is \$15. So the final answer is \$15.

18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is Subtract the descent from the starting height:  $200 - 350 = -150$  ft. So the final answer is  $-150$  ft.



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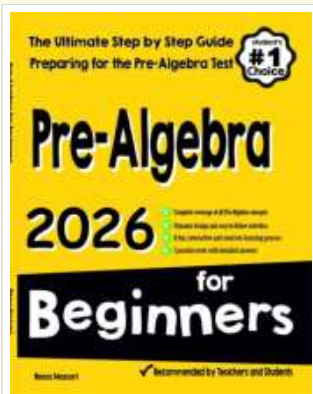
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