CCSS • 7.NS.1

Subtracting Integers

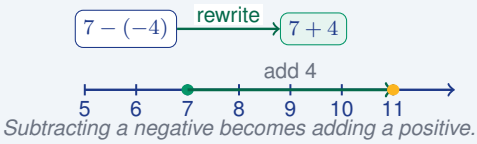
Name: _____	Date: _____	Score: _____ / 18

Here is the secret to subtracting integers: *don't* treat it as something new! Every subtraction can be rewritten as **adding the opposite**: $a - b = a + (-b)$. After that one rewrite, you already know what to do—just use the integer-addition rules from the last section. Try it with $-6 - (-9)$: rewrite as $-6 + 9$, and the answer is 3. The more you practice this "add-the-opposite" move, the faster and more confident you will become with any integer subtraction problem.

Key Concepts & Quick Review

Subtraction Rule: $a - b = a + (-b)$ **Keep · Change · Change (KCC):** keep the first number, change subtraction to addition, change the sign of the second number.

Examples: $7 - (-4) = 7 + 4 = 11$ $(-5) - 9 = (-5) + (-9) = -14$ $(-3) - (-10) = (-3) + 10 = 7$



Subtracting a negative becomes adding a positive.

Examples

① Evaluate $(-8) - (-11)$.

Think It Through: Rewrite subtraction as addition of the opposite. So $(-8) - (-11)$ becomes $(-8) + 11$. Now the signs are different, so subtract the absolute values: $11 - 8 = 3$. Since 11 has the larger absolute value, the answer is positive. Therefore the result is 3.

Answer: 3

② At sunrise the temperature was $-9°$F. By noon it had risen to $18°$F. By how many degrees did the temperature change from sunrise to noon?

Think It Through: Change means final minus initial, so write $18 - (-9)$. Use Keep-Change-Change: keep the 18, change subtraction to addition, and change -9 to $+9$. That gives $18 + 9 = 27$. So the temperature rose $27°$F.

Answer: $27°F$ *increase*

Practice Problems

Find each difference.

1. $8 - 13 =$ _____

2. $(-5) - 7 =$ _____

3. $(-9) - (-3) =$ _____

4. $4 - (-11) =$ _____

5. $(-12) - (-8) =$ _____

6. $0 - (-6) =$ _____

7. $(-15) - 9 =$ _____

8. $7 - (-7) =$ _____

9. $(-20) - (-20) =$ _____

10. $(-3) - 14 =$ _____

11. $25 - (-13) =$ _____

12. $(-8) - (-15) =$ _____

13. $(-40) - (-25) =$ _____

14. $6 - (-6) - 3 =$ _____

15. $(-11) - (-5) - 9 =$ _____

Study Tips

- Always apply **Keep** · **Change** · **Change** before simplifying: never skip the rewrite step.
- Subtracting a **negative** always increases the value: $5 - (-3) = 5 + 3 = 8 > 5$.
- For multi-step problems, rewrite *every* subtraction as addition first, then work left to right.

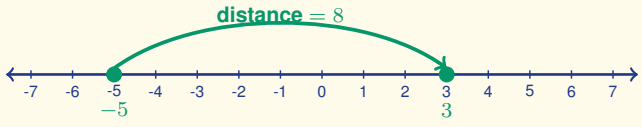
Word Problems

16. At 6:00 AM the temperature in a mountain town was $-14°$F. By 3:00 PM the temperature had climbed to $23°$F. Write a subtraction expression to find the total change in temperature, then evaluate it. By how many degrees did the temperature rise, and does the rise represent a gain or a loss? _____

17. A submarine began a mission at a depth of -520 feet. It then descended further to -785 feet. How many feet did the submarine descend during this maneuver? After reaching -785 feet, the submarine ascended 310 feet. Write and evaluate a subtraction expression to find the submarine's new depth after ascending.

_____

18. This number line shows the difference $3 - (-5)$ as a single arrow. Use the picture to (a) explain why $3 - (-5)$ is the same as $3 + 5$, (b) give the value of the expression, and (c) determine the *distance* between the two endpoints.



_____

Answer Keys

1) -5
2) -12
3) -6
4) 15
5) -4
6) 6
7) -24
8) 14
9) 0
10) -17
11) 38
12) 7
13) -15
14) 9
15) -15
16) $37°$F gain
17) Descended $265\,ft$; new depth $-475\,ft$
18) (a) $3+5$; (b) 8; (c) 8

Step-by-Step Explanations

Strategy: For Subtracting Integers, rewrite subtraction as adding the opposite whenever signs get crowded, then combine the positive and negative parts carefully. For integer-subtraction, have students say the rule in words before they start calculating.

Practice 1: $8-13=$ **Answer:** -5
For the first sample, rewrite $a-b$ as $a+(-b)$; the second number changes sign before the integers are combined.

Practice 15: $(-11)-(-5)-9=$ **Answer:** -15
Late in the set, check the sign of the number being subtracted first; taking the opposite is what keeps a double negative from slipping by.

Word-problem notes:

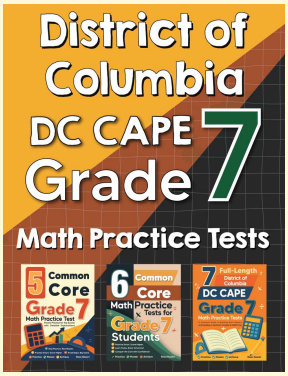
16. Answer: $23-(-14)=37°$F; a gain of $37°$.
Use final minus initial: $23-(-14)$. Subtracting a negative is the same as adding the opposite, so this becomes $23+14=37$. Because the temperature increased, the change is a gain of $37°$F.

17. Answer: Descended $265\,ft$; new depth $=-785-(-310)=-475\,ft$.
To find how much farther down the submarine went, subtract the starting depth from the new depth: $-785-(-520)=-785+520=-265$. The negative result tells you the movement was downward, so the submarine descended 265 feet. Then it ascends 310 feet, which means add 310: $-785+310=-475$. So the new depth is -475 feet.

18. Answer: (a) Keep–Change–Change rewrites $3-(-5)$ as $3+5$; (b) value $=8$; (c) distance $=8$.
Subtraction is the same as adding the opposite, so $3-(-5)=3+(+5)=3+5=8$. On the number line, the arrow shows that 3 is 8 units to the right of -5, which is exactly the distance between the two endpoints. The value of the expression equals the distance between the points.

Want Even More Practice?

Check Out Our Other District of Columbia DC CAPE Test Books!



District of Columbia DC CAPE Grade 7 Math Preparation Bundle

18 full-length practice tests across three books (5 + 6 + 7)

No repeated questions—maximum practice value!

18 Tests!
3 Books
One Bundle

Important: All our test books contain **unique, completely different tests** from each other! Each book offers fresh practice questions—no repeats!

5 Practice Tests

- ✓ 5 complete practice tests with detailed explanations
- ✓ Perfect foundation for DC CAPE test preparation
- ✓ Builds confidence and test-taking skills
- ✓ High-quality questions aligned with state standards

Start your practice journey!

6 Practice Tests

- ✓ 6 complete practice tests with detailed explanations
- ✓ **Unique tests**—different from the 5 tests book
- ✓ Perfect for more practice after mastering 5 tests
- ✓ Builds even more confidence and test-taking skills
- ✓ Same high-quality questions aligned with standards

Take your practice to the next level!

7 Practice Tests

- ✓ 7 complete practice tests for maximum preparation
- ✓ **Unique tests**—different from 5 and 6 tests books
- ✓ The most comprehensive practice for Grade 7
- ✓ Ideal for students aiming for top scores
- ✓ Extensive practice builds mastery and confidence

Go all the way with comprehensive practice!