

Adding and Subtracting Positive and Negative Numbers

Grade 7 math · Worksheet Answer Key · Standards: 7.NS.A.1a, 7.NS.A.1b, 7.NS.A.1c, 7.NS.A.1d

Each solution rewrites subtraction as addition when needed, shows the sign rule used and checks the result. If your sign is different, rebuild the number line move and compare it with the solution.

Standards: 7.NS.A.1a, 7.NS.A.1b, 7.NS.A.1c, 7.NS.A.1d · **Level:** Grade 7

Problem 1 Opposites and Zero Sums

(a) -17 : $17 + (-17) = 0$.

(b) 9 : $-9 + 9 = 0$.

(c) 0 : $0 + 0 = 0$.

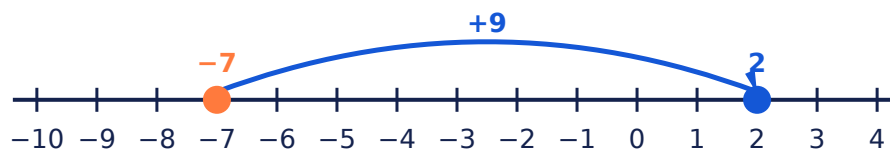
(d) 2.5 : $-2.5 + 2.5 = 0$.

Answer: **$-17, 9, 0, 2.5$; every sum is 0**

Problem 2 Adding on a Number Line

Start at -7 and move 9 units right, passing 0 after 7 steps and ending 2 steps later.

Answer: **$-7 + 9 = 2$**



$$-7 + 9 = 2.$$

Problem 3 Adding Two Negatives

Same signs: add $6 + 7 = 13$ and keep the negative sign.

Answer: **-13**

Problem 4 Mixed Signs

Different signs: $19 - 12 = 7$. The larger absolute value belongs to -19 , so the sign is negative.

Answer: **-7**

Problem 5 Morning Warm-Up

$$-4 + 11 = 7.$$

Answer: **7°F**

Problem 6 Account Deposit

$$-25 + 60 = 35.$$

Answer: **\$35**

Problem 7 Subtracting a Larger Number

$$5 - 12 = 5 + (-12).$$

$12 - 5 = 7$, and the negative number is larger in size, so the sign is negative.

Answer: **-7**

Problem 8 Three Subtractions

$$(a) -9 - 4 = -9 + (-4) = -13.$$

$$(b) -9 - (-4) = -9 + 4 = -5.$$

$$(c) 9 - (-4) = 9 + 4 = 13.$$

Answer: **-13, -5, 13**

Problem 9 Adding the Opposite

$$-15 - (-22) = -15 + 22.$$

$22 - 15 = 7$, and 22 has the larger absolute value, so the sign is positive.

Answer: **7**

Problem 10 Diver's Elevation

After rising: $-38 + 15 = -23$.

After descending: $-23 - 20 = -43$.

Answer: **-43 feet**

Problem 11 Decimal Sums and Differences

(a) $5.2 - 3.7 = 1.5$, positive because 5.2 is larger: 1.5.

(b) $-2.4 - 1.9 = -2.4 + (-1.9) = -4.3$.

Answer: **1.5 and -4.3**

Problem 12 Fraction Sums and Differences

(a) $-\frac{3}{4} + \frac{2}{4} = -\frac{1}{4}$.

(b) $\frac{2}{6} - \frac{5}{6} = -\frac{3}{6} = -\frac{1}{2}$.

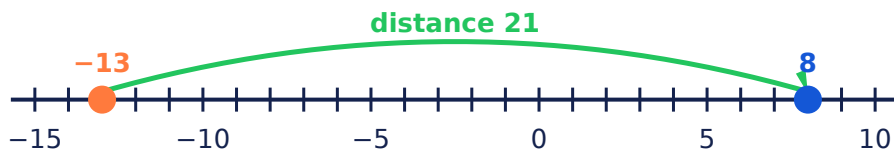
Answer: **$-\frac{1}{4}$ and $-\frac{1}{2}$**

Problem 13 Distance Between Two Points

$|8 - (-13)| = |8 + 13| = 21$.

Check: from -13 to 0 is 13 , and from 0 to 8 is 8 ; $13 + 8 = 21$.

Answer: **21 units**



$$\text{Distance} = |8 - (-13)| = 21.$$

Problem 14 Distance with Decimals

$|-2.25 - (-5.5)| = |-2.25 + 5.5| = |3.25| = 3.25$.

Answer: **3.25 units**

Problem 15 Temperature Changes in a Day

6 AM to noon: $14 - (-9) = 23$.

Noon to midnight: $-6 - 14 = -20$.

6 AM to midnight: $-6 - (-9) = 3$. Check: $23 + (-20) = 3$.

Answer: **+23°F, -20°F, +3°F**

Problem 16 Checking Account Balance

After the purchase: $75.20 - 98.60 = -23.40$.

After the deposit: $-23.40 + 50.00 = 26.60$.

After the fee: $26.60 - 12.50 = 14.10$.

Answer: **-\$23.40, \$26.60, \$14.10; final balance \$14.10**

Problem 17 Hiker's Elevation

Climb: $1,240 - (-85) = 1,325$.

Descent: $-20 - 1,240 = -1,260$.

Start to end: $-20 - (-85) = 65$. Check: $1,325 + (-1,260) = 65$.

Answer: **+1,325 ft; -1,260 ft; +65 ft overall**

Problem 18 Missing Numbers

(a) $? = 6 - (-14) = 20$. Check: $-14 + 20 = 6$.

(b) $? + 9 = -3$, so $? = -3 - 9 = -12$. Check: $-12 - (-9) = -3$.

(c) $8 + (-?) = 15$, so $-? = 7$ and $? = -7$. Check: $8 - (-7) = 15$.

Answer: **20, -12, -7**

Problem 19 Football Yard Line

After each play: $7; 7 - 12 = -5; -5 + 5 = 0; 0 - 9 = -9; -9 + 14 = 5; 5 - 3 = 2$.

The lowest value is -9 .

Answer: **7, -5, 0, -9, 5, 2; lowest position -9 yards**

Problem 20 Submarine Depth

After rising: $-85.5 + 32.75 = -52.75$.

After diving: $-52.75 - 60.25 = -113$.

Distance from start: $|-113 - (-85.5)| = |-27.5| = 27.5$.

Answer: **-113 meters; 27.5 meters from the start**