

## Adding and Subtracting Integers: math practice, Grade 7 – download the PDF

22 problems graded by difficulty (★ easy, ★★ medium, ★★★ hard). Try first, without looking at the solutions!

### 1 Writing opposites

★ ★ ★

Write the opposite of each number: 9, -14, 0, 2.5.

### 2 Absolute values

★ ★ ★

Find  $|-8|$ ,  $|5|$ ,  $|0|$  and  $|-12|$ . Then say which is larger,  $|-7|$  or  $|4|$ .

### 3 Quick sums

★ ★ ★

Compute: (a)  $-3 + (-9)$  (b)  $8 + (-5)$  (c)  $-6 + 10$  (d)  $-7 + 7$  (e)  $-15 + 4$ .

### 4 Quick differences

★ ★ ★

Rewrite as an addition, then compute: (a)  $6 - 10$  (b)  $3 - (-5)$  (c)  $-4 - 7$  (d)  $-2 - (-9)$  (e)  $0 - (-6)$ .

### 5 Morning warm-up



At sunrise the temperature in a ski town is  $-8^{\circ}\text{F}$ . By afternoon it has risen 15 degrees. What is the afternoon temperature?

### 6 True or false?

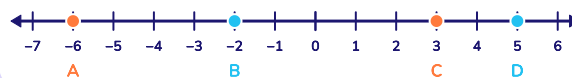


Decide and justify: (a)  $|-3| = 3$ . (b) The opposite of  $-6$  is 6. (c)  $-5 + 2 = -7$ . (d)  $4 - (-4) = 0$ .

### 7 Reading the number line



Look at the number line.



Give the coordinate of each point, its opposite, and its distance from 0.

### 8 Submarine dive



A research submarine is at a depth of 45 feet, which we write as  $-45$ . It rises 18 feet, then dives 30 feet. Where is it now? Give the answer in feet and then in meters ( $1 \text{ ft} = 0.3048 \text{ m}$ , rounded to the tenth).

### 9 Distances



Find the distance between: (a)  $-7$  and 5 (b)  $-9$  and  $-2$  (c) 3 and 11 (d)  $-4$  and 0.

**10 Bank account**

Lena's account has 42 dollars. She pays a bill of 65 dollars, deposits 30 dollars, then is charged a 12-dollar fee. What is her balance now? What does the sign tell you?

**11 Missing numbers**

Find the missing number: (a)  $-6 + \square = -2$  (b)  $\square + (-7) = -10$  (c)  $5 - \square = 12$  (d)  $\square - (-3) = 1$ .

**12 Find the error**

Maya wrote  $-8 - 5 = -3$ . Explain her mistake and give the correct answer.

**13 Trivia game**

In a trivia game a team scores +15, -10, +5, -20 and +10 in five rounds. What is the final score? After which round was the running total lowest?

**14 The hiker**

A hiker starts in a cave 120 feet below sea level and climbs to a ridge 340 feet above sea level. How many feet does she climb?

**15 Rational numbers**

Compute: (a)  $-2.5 + 4.75$  (b)  $-\frac{3}{4} + \frac{1}{2}$  (c)  $1.2 - (-3.8)$  (d)  $-\frac{5}{6} - \left(-\frac{1}{3}\right)$ .

**16 A long expression**

★★★

Compute  $-12 + 9 - (-4) - 7$  step by step, then check by grouping the positive and the negative terms.

**17 Two mystery integers**

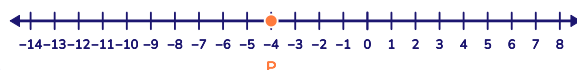
★★★

Two integers have sum  $-3$ . The first minus the second equals 11. Find them.

**18 Points at a given distance**

★★★

Point P is at  $-4$ .



Find every point Q that is 9 units from P. Then, for each Q, compute  $|Q - P|$ .

**19 Weather extremes**

★★★

A weather station records  $14^{\circ}\text{F}$  at noon,  $5^{\circ}\text{F}$  at 6 p.m. and  $-11^{\circ}\text{F}$  at 6 a.m. the next day.

(a) By how many degrees did the temperature fall between 6 p.m. and 6 a.m.? (b) What is the gap between the warmest and coldest readings?

**20 Always, sometimes, never**

★★★

Say whether each statement is always, sometimes or never true, with an example. (a) The sum of two negative numbers is negative. (b) The difference of two positive numbers is positive. (c)  $a + (-a) = 0$ . (d)  $|a| = a$ .

### 21 Elevator trip



A parking garage has floors from  $-3$  to 8. An elevator starts at floor 2, goes down 5 floors, up 9, down 7, then up to floor 8. (a) List the floors it visits. (b) How many floors does it travel in total?

### 22 Swapping the order



Let  $a = -5$  and  $b = 3$ . Compute  $a - b$  and  $b - a$ . What do you notice? Explain why this works for any two numbers using distance.



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