

Grade 7 · Multiplying and Dividing Integers and Rational Numbers · Worksheet

Common Core 7.NS.A.2a, 7.NS.A.2b, 7.NS.A.2c · mathovore.fr

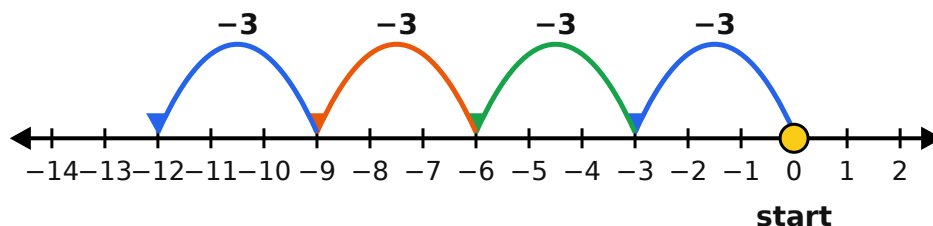
Name: _____ Date: ____/____/____ Score: _____

These 20 problems build fluency with multiplying and dividing integers and rational numbers (Common Core 7.NS.A.2). You will use repeated addition, number patterns, tape diagrams, and the sign rules, and you will practice why division by zero is undefined. The last six problems apply the ideas to temperature, depth, money, and multi-step expressions.

Grade 7 Common Core: 7.NS.A.2a · 7.NS.A.2b · 7.NS.A.2c

Problem 1: Repeated Addition

The number line shows jumps that start at 0.

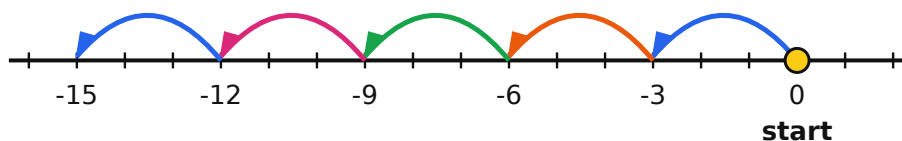


Four equal jumps from 0.

- Write the multiplication problem the jumps show and find the product.
- Write $5 \times (-2)$ as repeated addition and find the product.

Problem 2: Jumps of Negative Three

The number line shows equal jumps that start at 0.



Five equal jumps from 0.

- Write the multiplication problem that the jumps show and find the product.

- b. Write $3 \times (-5)$ as repeated addition. Compare it with your answer to part (a).

Problem 3: Sign Rules for Products

Find each product.

- a. $(-7)(6)$
- b. $(-5)(-8)$
- c. $9(-4)$
- d. $(-12)(-3)$
- e. $0(-15)$

Problem 4: Count the Negative Factors

Find each product. Tell how many negative factors there are.

- a. $(-2)(-3)(-4)$
- b. $(-1)(-1)(-1)(-1)$
- c. $(-5)(2)(-3)$
- d. $(-2)(-2)(-2)(-2)(-2)$

Problem 5: A Pattern of Products

The table multiplies -4 by a list of factors.

Factor	3	2	1	0	-1	-2
$(-4) \times \text{factor}$	-12	-8	-4	0	?	?

Products of -4 .

- a. Find the two missing products.
- b. Describe how the products change as the factor decreases by 1, and say what this suggests about the product of two negative numbers.

Problem 6: Find the Missing Number

Find the number that makes each equation true. Write a multiplication or division fact to check each answer.

- a. $-7 \times [\text{square}] = 56$
- b. $[\text{square}] \div (-4) = 9$
- c. $-45 \div [\text{square}] = 9$
- d. $-6 \times [\text{square}] = -54$

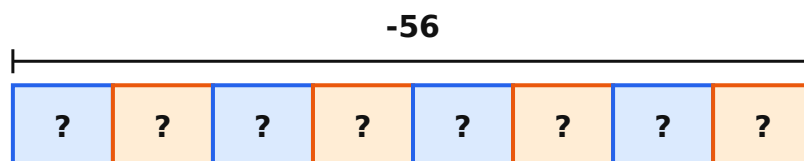
Problem 7: Dividing Integers

Find each quotient.

- a. $-48 \div 6$
- b. $-45 \div (-9)$
- c. $56 \div (-7)$
- d. $0 \div (-5)$
- e. $-90 \div (-15)$

Problem 8: Tape Diagram for Division

The tape diagram splits -56 into 8 equal parts.

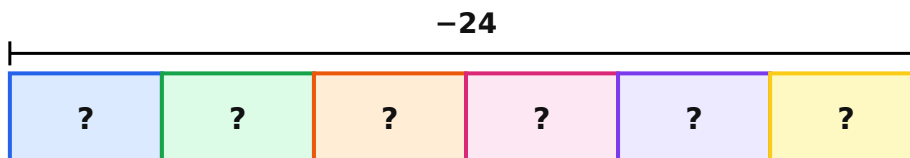


Eight equal parts make -56 .

- a. Write a division equation and find the value of one part.
- b. Check the answer with multiplication.
- c. Find $-56 \div (-7)$ and explain what the answer means for the tape diagram.

Problem 9: Division as Equal Parts

The tape diagram splits -24 into 6 equal parts.



Six equal parts.

- a. Write a division equation and find the value of one part.
- b. Check your answer with multiplication.
- c. Find $-35 \div 5$ and write its multiplication check.

Problem 10: Division by Zero

- a. Find $0 \div 8$.
- b. Explain why $8 \div 0$ is undefined.
- c. A student says $0 \div 0 = 0$ because "zero divided by anything is zero." Explain why that

reasoning fails.

Problem 11: Decimal Products and Quotients

Find each product or quotient.

- a. $(-0.6)(0.9)$
- b. $(-1.5)(-4)$
- c. $-7.2 \div (-0.8)$
- d. $4.5 \div (-0.9)$

Problem 12: Signs in Fractions

- a. Evaluate $-\frac{12}{4}$, $\frac{-12}{4}$, and $\frac{12}{-4}$.
- b. Evaluate $-\frac{-10}{2}$ and $\frac{10}{2}$.
- c. Write $\frac{20}{-5}$ in two other equivalent forms and evaluate.

Problem 13: Fraction Products and Quotients

Find each product or quotient. Write each answer in simplest form.

- a. $(-\frac{5}{6})(-\frac{3}{10})$
- b. $-\frac{2}{3} \div \frac{4}{9}$
- c. $-\frac{3}{4} \div (-\frac{3}{8})$

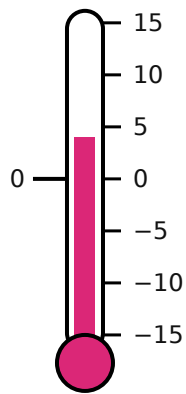
Problem 14: Powers and Order of Operations

Evaluate each expression.

- a. $(-2)^3$
- b. $(-3)^2$ and $-(3^2)$. Explain why the answers differ.
- c. $-3(4-9) + (-20) \div 5$

Problem 15: Falling Temperatures

At 2 p.m. the temperature is shown on the thermometer. It then drops 3°F every hour for 5 hours.



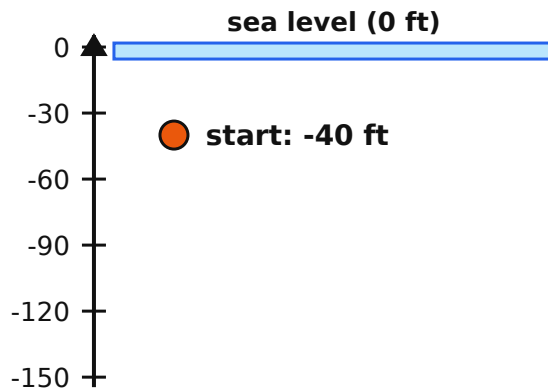
4°F

2 p.m. temperature.

- Write and evaluate a product for the total change.
- Find the temperature at 7 p.m.

Problem 16: Submarine Dive

A submarine is at the depth shown, in feet relative to sea level. It then dives at a steady rate of 15 feet per minute for 7 minutes.



Starting depth of the submarine.

- Write and evaluate a product for the total change in depth.
- Find the depth after 7 minutes.
- After how many minutes from the start is the submarine at -190 feet?

Problem 17: Weekly Fees

Diego's gym account has a weekly fee, as shown on the receipt.

Gym account	
Weekly fee	-\$15.00
Weeks	6
Start balance	\$120.00

Account details.

- Find the total change in the balance after 6 weeks.
- Find the balance after 6 weeks.
- After how many weeks is the balance first below \$0?

Problem 18: Mean Temperature Change

A weather station recorded the change in the afternoon temperature on five days: -6°F , -9°F , -12°F , -3°F , and -10°F . (a) Find the mean daily change. (b) The temperature at the start was 20°F . If it changed by the mean amount on each of the five days, what is the final temperature? (c) Explain why the final temperature equals $20+(-6)+(-9)+(-12)+(-3)+(-10)$.

Problem 19: Stock Price Tracker

Ethan tracks a stock that starts at \$50. For 5 days the price falls \$4 each day. For the next 5 days it rises \$2 each day. (a) Write an expression with integers for the total change over the 10 days and evaluate it. (b) Find the price after 10 days. (c) Find the mean change per day over the 10 days.

Problem 20: Multi-Step Products and Quotients

- $(-6)(-4)\div(-8)$
- $-4(5-2)$. Evaluate it two ways: first simplify inside the parentheses, then use the distributive property.
- $\left(-\frac{3}{4}\right)\left(\frac{8}{9}\right)$