

# Multiplying and Dividing Integers

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

## Quick Review and Helpful Hints

When you multiply or divide two integers, only the signs decide the result's sign: *same signs give a positive, different signs give a negative.* Multiply or divide the absolute values, then attach the correct sign. (For several factors, an even number of negatives is positive, an odd number is negative.)

▷ **Example:** Evaluate  $(-4)(-5)$  and  $(-12) \div 3$ . **Work:** Same signs in  $(-4)(-5)$ :  $4 \times 5 = 20$ , positive. Different signs in  $(-12) \div 3$ :  $12 \div 3 = 4$ , negative.   
 ★ **Answer:** 20 and  $-4$

$(+)(+) = +$

$(-)(-) = +$

$(+)(-) = -$

$(-)(+) = -$

Same signs +, different signs -.

### Practice Problems

Multiply or divide.

- |                      |       |                       |       |
|----------------------|-------|-----------------------|-------|
| 1. $3 \times (-4)$   | _____ | 8. $24 \div (-6)$     | _____ |
| 2. $(-5)(-2)$        | _____ | 9. $(-9)(2)$          | _____ |
| 3. $(-6)(3)$         | _____ | 10. $(-36) \div (-9)$ | _____ |
| 4. $(-20) \div 4$    | _____ | 11. $(-1)(-1)$        | _____ |
| 5. $(-15) \div (-3)$ | _____ | 12. $5 \times (-5)$   | _____ |
| 6. $7 \times (-2)$   | _____ | 13. $(-18) \div 3$    | _____ |
| 7. $(-8)(-4)$        | _____ | 14. $(-2)(3)(-4)$     | _____ |

### Word Problems

15. A store loses \$5 each day for 4 days. What is the total change in money? \_\_\_\_\_
16. A diver descends a total of  $-12$  feet in 3 equal stages. What is the change per stage? \_\_\_\_\_
17. The temperature drops  $3^\circ$  each hour for 6 hours. What is the total change? \_\_\_\_\_
18. A debt of  $-\$24$  is shared equally among 8 people. What is each person's share? \_\_\_\_\_



## Answer Keys

- |                                     |                                      |  |
|-------------------------------------|--------------------------------------|--|
| 1. <input type="text" value="-12"/> | 7. <input type="text" value="32"/>   | 13. <input type="text" value="-6"/>    |
| 2. <input type="text" value="10"/>  | 8. <input type="text" value="-4"/>   | 14. <input type="text" value="24"/>    |
| 3. <input type="text" value="-18"/> | 9. <input type="text" value="-18"/>  | 15. <input type="text" value="-\$20"/> |
| 4. <input type="text" value="-5"/>  | 10. <input type="text" value="4"/>   | 16. <input type="text" value="-4 ft"/> |
| 5. <input type="text" value="5"/>   | 11. <input type="text" value="1"/>   | 17. <input type="text" value="-18°"/>  |
| 6. <input type="text" value="-14"/> | 12. <input type="text" value="-25"/> | 18. <input type="text" value="-\$3"/>  |

### 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 Different signs give a negative answer. Multiply the values:  $3 \times 4 = 12$ , then attach the minus:  $-12$ . So the final answer is  $-12$ .

**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 give a positive answer:  $5 \times 2 = 10$ , so 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:  $6 \times 3 = 18$ , negative, so  $-18$ . So the final answer is  $-18$ .

**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 Different signs:  $20 \div 4 = 5$ , negative, so  $-5$ . So the final answer is  $-5$ .

**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 Same signs:  $15 \div 3 = 5$ , positive, so 5. So the final answer is 5.

**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 Different signs:  $7 \times 2 = 14$ , negative, so  $-14$ . So the final answer is  $-14$ .

**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 Same signs:  $8 \times 4 = 32$ , positive, so 32. So the final answer is 32.

**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 Different signs:  $24 \div 6 = 4$ , negative, so  $-4$ . So the final answer is  $-4$ .

**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:  $9 \times 2 = 18$ , negative, so  $-18$ . So the final answer is  $-18$ .

**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 Same signs:  $36 \div 9 = 4$ , positive, so 4. So the final answer is 4.

**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 Same signs:  $1 \times 1 = 1$ , positive, so 1. So the final answer is 1.

**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:  $5 \times 5 = 25$ , negative, so  $-25$ . So the final answer is  $-25$ .

**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 Different signs:  $18 \div 3 = 6$ , negative, so  $-6$ . So the final answer is  $-6$ .

**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 Count the negatives – there are two (even), so the result is positive. Multiply the values:  $2 \times 3 \times 4 = 24$ , so 24. So the final answer is 24.

**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 Each day loses \$5 for 4 days:  $4 \times (-5) = -\$20$  total change. So the final answer is  $-\$20$ .

**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 Split the total descent into equal stages:  $-12 \div 3 = -4$  ft per stage. So the final answer is  $-4$  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 Each hour drops  $3^\circ$  over 6 hours:  $6 \times (-3) = -18^\circ$ . So the final answer is  $-18^\circ$ .

**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 Split the debt among the people:  $-24 \div 8 = -\$3$  each. So the final answer is  $-\$3$ .



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