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. $3 \times (-4)$ _____

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

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

4. $(-20) \div 4$ _____

5. $(-15) \div (-3)$ _____

6. $7 \times (-2)$ _____

7. $(-8)(-4)$ _____

8. $24 \div (-6)$ _____

9. $(-9)(2)$ _____

10. $(-36) \div (-9)$ _____

11. $(-1)(-1)$ _____

12. $5 \times (-5)$ _____

13. $(-18) \div 3$ _____

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 $3°$ 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. -12	**7.** 32	**13.** -6
2. 10	**8.** -4	**14.** 24
3. -18	**9.** -18	**15.** $-\$20$
4. -5	**10.** 4	**16.** -4 ft
5. 5	**11.** 1	**17.** -18°
6. -14	**12.** -25	**18.** $-\$3$

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° over 6 hours: $6 \times (-3) = -18^\circ$. So the final answer is -18°.

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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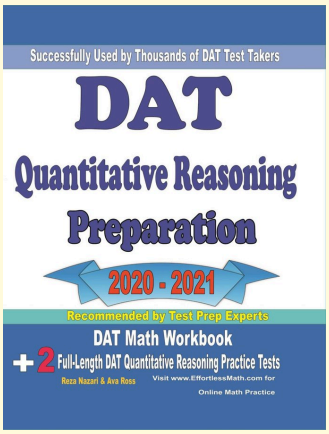

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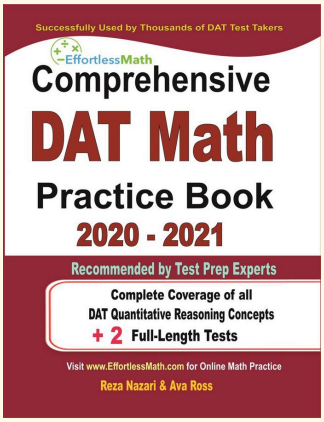

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