Integer Multiplication and Division

Name: _____	Date: _____	Score: _____ / 24

Quick Review

For multiplying or dividing integers, the **sign rules** are simple. If the two numbers have the **same sign**, the answer is **positive**. If they have **different signs**, the answer is **negative**. So $(-6)(7) = -42$ but $(-8)(-3) = 24$. First multiply or divide the numbers as if they were positive, then attach the correct sign. When you multiply several numbers, count the negative signs: an *even* number of negatives gives a positive, an *odd* number gives a negative.

◇ **Example:** Find $(-8)(-3)$.

⇒ First ignore the signs and multiply the plain numbers: $8 \times 3 = 24$. Now decide the sign. Both factors are negative, which means they have the *same* sign. The same-sign rule tells us the answer is positive. So $(-8)(-3) = 24$. A helpful way to remember: a negative of a negative turns positive, just like $-(-3) = 3$.

Answer: 24

PRACTICE

Multiply or divide the integers.

1. $(-6)(7)$ _____

2. $(9)(-4)$ _____

3. $(-7)(8)$ _____

4. $(-11)(5)$ _____

5. $(-8)(-3)$ _____

6. $(-5)(-5)$ _____

7. $(-15)(-2)$ _____

8. $(-12)(0)$ _____

9. $-36 \div 6$ _____

10. $56 \div (-7)$ _____

11. $-90 \div 10$ _____

12. $64 \div (-16)$ _____

13. $-48 \div (-8)$ _____

14. $-72 \div (-9)$ _____

15. $-100 \div (-25)$ _____

16. $-81 \div (-9)$ _____

17. $(2)(-5)(3)$ _____

18. $(-3)(-4)(-2)$ _____

19. $(-4)(-4)(-4)$ _____

20. $(-2)^3$ _____

♦ Word Problems

21. A scuba diver descends 3 feet every minute. Write a product to find her depth change after 8 minutes. _____

22. A store loses $\$250$ over 5 equal days. What is the average daily change in money? _____

23. A submarine rises at a rate represented by -6 feet per minute relative to its dive. Over -7 minutes (7 minutes earlier), what was its position change? _____

24. A team's total score dropped by 45 points across 9 equal rounds. What was the score change per round? _____

Answer Keys

1. -42
2. -36
3. -56
4. -55
5. 24
6. 25
7. 30
8. 0
9. -6
10. -8
11. -9
12. -4
13. 6
14. 8
15. 4
16. 9
17. -30
18. -24
19. -64
20. -8
21. -24 feet
22. $-\$50$
23. 42 feet
24. -5 points

Step-by-Step Explanations

1. Different signs give a negative: $6 \times 7 = 42$, so -42.
2. Different signs give a negative: $9 \times 4 = 36$, so -36.
3. Different signs give a negative: $7 \times 8 = 56$, so -56.
4. Different signs give a negative: $11 \times 5 = 55$, so -55.
5. Same sign gives a positive: $8 \times 3 = 24$.
6. Same sign gives a positive: $5 \times 5 = 25$.
7. Same sign gives a positive: $15 \times 2 = 30$.
8. Anything multiplied by 0 is 0.
9. Different signs give a negative: $36 \div 6 = 6$, so -6.
10. Different signs give a negative: $56 \div 7 = 8$, so -8.
11. Different signs give a negative: $90 \div 10 = 9$, so -9.
12. Different signs give a negative: $64 \div 16 = 4$, so -4.
13. Same sign gives a positive: $48 \div 8 = 6$.
14. Same sign gives a positive: $72 \div 9 = 8$.
15. Same sign gives a positive: $100 \div 25 = 4$.
16. Same sign gives a positive: $81 \div 9 = 9$.
17. One negative sign (odd), so the product is negative: $2 \times 5 \times 3 = 30$, giving -30.
18. Three negative signs (odd), so the product is negative: $3 \times 4 \times 2 = 24$, giving -24.
19. Three negatives (odd) give a negative: $4 \times 4 \times 4 = 64$, so -64.
20. $(-2)^3 = (-2)(-2)(-2)$; three negatives give a negative 8, so -8.
21. Descending 3 feet is -3 per minute, so over 8 minutes the change is $(-3)(8) = -24$ feet.
22. A loss of $\$250$ is -250. Divided over 5 days: $-250 \div 5 = -50$, so $-\$50$ per day.
23. $(-6)(-7) = 42$. Two negatives give a positive, so the position change was $+42$ feet.
24. A drop of 45 points is -45. Divided over 9 rounds: $-45 \div 9 = -5$ points per round.

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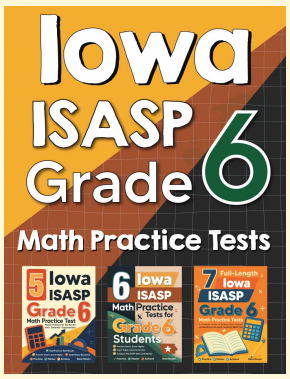

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