Integer Multiplication and Division

Integer multiplication and division: Mistakes and missing information

Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

The product or quotient of numbers with the same sign is positive; different signs give a negative result. Thus $(-3)(-4) = 12$, but $(-12)/4 = -3$. Multiply or divide absolute values first, then determine the sign. Zero times any integer is zero; division by zero is undefined.

Worked example

Find $(-6)(-4)$.

1. First calculate sizes: $6 \times 4 = 24$.
2. The signs are the same, so the result is positive: 24.
3. Check $24 \div (-4) = -6$.
Answer: 24.

Practice Problems

Show your thinking.

1. Correct $(-5)(-6) = -30$.

2. A student says $72 \div (-8) = 9$. Repair the sign.

3. Find x in $6x = -48$.

4. Find x in $-6x = 54$.

5. Correct the claim that a product with one negative factor is positive. Use $(-9)4$.

6. Correct $-35 \div (-5) = -7$ by checking multiplication.

7. A student says every product with a negative factor is negative. Test $(-11)(-2)$.

8. Recover x in $-9x = 81$.

Answer Key

1. 30.
2. -9.
3. $x = -8$.
4. $x = -9$.
5. -36.
6. 7.
7. 22.
8. $x = -9$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. First calculate sizes: $5 \times 6 = 30$.
2. The signs are the same, so the result is positive: 30.
3. Check $30 \div (-6) = -5$.

Problem 2

1. First calculate sizes: $72 \div 8 = 9$.
2. The signs are different, so the result is negative: -9.
3. Check $-9 \times (-8) = 72$.

Problem 3

1. The given equation is $(6)x = -48$. Divide both sides by 6.
2. The quotient has magnitude $48 \div 6 = 8$ and is negative.
3. So $x = -8$; check $(6)(-8) = -48$.

Problem 4

1. The given equation is $(-6)x = 54$. Divide both sides by -6.
2. The quotient has magnitude $54 \div 6 = 9$ and is negative.
3. So $x = -9$; check $(-6)(-9) = 54$.

Problem 5

1. First calculate sizes: $9 \times 4 = 36$.
2. The signs are different, so the result is negative: -36.
3. Check $-36 \div (4) = -9$.

Problem 6

1. First calculate sizes: $35 \div 5 = 7$.
2. The signs are the same, so the result is positive: 7.
3. Check $7 \times (-5) = -35$.

Problem 7

1. First calculate sizes: $11 \times 2 = 22$.
2. The signs are the same, so the result is positive: 22.
3. Check $22 \div (-2) = -11$.

Problem 8

1. The given equation is $(-9)x = 81$. Divide both sides by -9.
2. The quotient has magnitude $81 \div 9 = 9$ and is negative.
3. So $x = -9$; check $(-9)(-9) = 81$.

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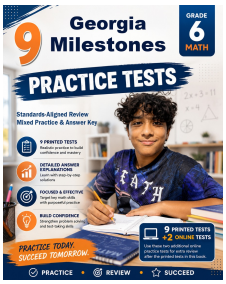

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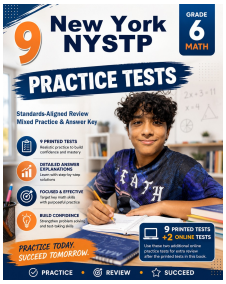

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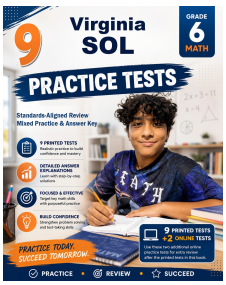

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