Multiplying Integers and Rational Numbers

Explore ideas and representations

Name _____ **Date** _____ **Score** _____ / 10

QUICK REVIEW

Equal signs give a positive product; different signs give a negative product. Multiply fraction numerators and denominators, then reduce: $(-2/3)(9/4) = -18/12 = -3/2$. Zero times any number is zero.

Worked example

Evaluate $(-\frac{3}{2}) \times (\frac{1}{2})$. Show an exact fraction or integer.

1. The sign is negative because the factors have different signs.

2. Multiply numerator and denominator: $\frac{(-3)(1)}{2(2)} = \frac{-3}{4}$.

3. Reduce to $-\frac{3}{4}$; check $-\frac{3}{4} \div (\frac{1}{2}) = -\frac{3}{2}$.

Answer: $-\frac{3}{4}$.

Practice Problems

Show your thinking.

1. Evaluate $(-\frac{7}{2}) \times (1)$. Show an exact fraction or integer.

2. Represent $(\frac{5}{3}) \times (-\frac{9}{4})$ as a signed-factor equation and find the value.

3. Find the missing number: $(-\frac{3}{2}) \times x = \frac{3}{2}$.

4. Find $(4) \times (-\frac{4}{3})$ and its opposite. Which is greater, or are they equal?

5. Evaluate $[(-1) \times (\frac{7}{4})] + (-1)$. Keep the intermediate result visible.

6. Predict whether $(1) \times (-3)$ is positive, negative, or zero. Then compute to justify the prediction.

7. A check for $(-4) \times (\frac{5}{3})$ uses the result $-\frac{20}{3}$. Write a numerical inverse-operation check.

8. Find $(3) \times (-\frac{3}{4})$, then write the number that must be added to that result to make 0.

9. Evaluate $[(-\frac{17}{5}) \times (\frac{11}{6})] + (-\frac{17}{5})$. Keep the intermediate result visible.

10. Reconstruct x from $x \times (-\frac{7}{12}) = -\frac{133}{96}$. Check by substitution.

Answer Key

1. $-\frac{7}{2}$.
2. $-\frac{15}{4}$.
3. $x = -1$.
4. $-\frac{16}{3}$ and $\frac{16}{3}$; greater $\frac{16}{3}$.
5. $-\frac{11}{4}$.
6. -3, negative.
7. $(-\frac{20}{3}) \div (\frac{5}{3}) = -4$.
8. Result $-\frac{9}{4}$; add $\frac{9}{4}$.
9. $-\frac{289}{30}$.
10. $x = \frac{19}{8}$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The sign is negative because the factors have different signs.
2. Multiply numerator and denominator: $\frac{(-7)(1)}{2(1)} = \frac{-7}{2}$.
3. Reduce to $-\frac{7}{2}$; check $-\frac{7}{2} \div (1) = -\frac{7}{2}$.

Problem 2

1. The sign is negative because the factors have different signs.
2. Multiply numerator and denominator: $\frac{(5)(-9)}{3(4)} = \frac{-45}{12}$.
3. Reduce to $-\frac{15}{4}$; check $-\frac{15}{4} \div (-\frac{9}{4}) = \frac{5}{3}$.

Problem 3

1. Divide the product by the known factor.
2. Reciprocal of the divisor: $1/(-\frac{3}{2}) = -\frac{2}{3}$.
3. $x = (\frac{3}{2}) \div (-\frac{3}{2}) = -1$.
4. Check in the original: $(-\frac{3}{2}) \times (-1) = \frac{3}{2}$.

Problem 4

1. The sign is negative because the factors have different signs.
2. Multiply numerator and denominator: $\frac{(4)(-4)}{1(3)} = \frac{-16}{3}$.
3. Reduce to $-\frac{16}{3}$; check $-\frac{16}{3} \div (-\frac{4}{3}) = 4$.
4. The opposite of $-\frac{16}{3}$ is $\frac{16}{3}$; $\frac{16}{3}$ is farther right on the number line.

Problem 5

1. The sign is negative because the factors have different signs.
2. Multiply numerator and denominator: $\frac{(-1)(7)}{1(4)} = \frac{-7}{4}$.
3. Reduce to $-\frac{7}{4}$; check $-\frac{7}{4} \div (\frac{7}{4}) = -1$.
4. Now add (-1): $-\frac{7}{4} + (-1) = -\frac{11}{4}$.

Problem 6

1. The signs differ, so expect a negative value.
2. The sign is negative because the factors have different signs.
3. Multiply numerator and denominator: $\frac{(1)(-3)}{1(1)} = \frac{-3}{1}$.
4. Reduce to -3; check $-3 \div (-3) = 1$.

Problem 7

1. The sign is negative because the factors have different signs.
2. Multiply numerator and denominator: $\frac{(-4)(5)}{1(3)} = \frac{-20}{3}$.
3. Reduce to $-\frac{20}{3}$; check $-\frac{20}{3} \div (\frac{5}{3}) = -4$.
4. Inverse check: $(-\frac{20}{3}) \div (\frac{5}{3}) = -4$.

Problem 8

1. The sign is negative because the factors have different signs.
2. Multiply numerator and denominator: $\frac{(3)(-3)}{1(4)} = \frac{-9}{4}$.
3. Reduce to $-\frac{9}{4}$; check $-\frac{9}{4} \div (-\frac{3}{4}) = 3$.
4. $-\frac{9}{4} + (\frac{9}{4}) = 0$, so the additive inverse is $\frac{9}{4}$.

Problem 9

1. The sign is negative because the factors have different signs.
2. Multiply numerator and denominator: $\frac{(-17)(11)}{5(6)} = \frac{-187}{30}$.
3. Reduce to $-\frac{187}{30}$; check $-\frac{187}{30} \div (\frac{11}{6}) = -\frac{17}{5}$.
4. Now add $(-\frac{17}{5})$: $-\frac{187}{30} + (-\frac{17}{5}) = -\frac{289}{30}$.

Problem 10

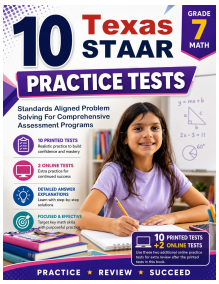
1. Divide the product by the known factor.
2. Reciprocal of the divisor: $1/(-\frac{7}{12}) = -\frac{12}{7}$.
3. $x = (-\frac{133}{96}) \div (-\frac{7}{12}) = \frac{19}{8}$.
4. Check in the original: $(\frac{19}{8}) \times (-\frac{7}{12}) = -\frac{133}{96}$.

TESTINAR

Keep Building Grade 7 Math Skills

Choose the practice book matched to your state assessment and turn worksheet practice into a complete test-prep plan.

All Grade 7 books



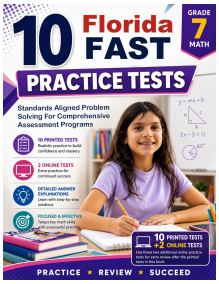
TEXAS STAAR

10 Full-Length Math Practice Tests

Build Grade 7 accuracy, confidence, and test stamina with 10 printable practice tests.

Printable eBook • Instant PDF access

View eBook



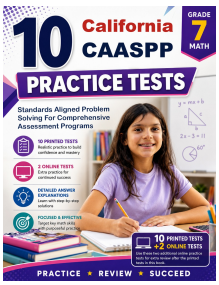
FLORIDA FAST

10 Full-Length Math Practice Tests

Build Grade 7 accuracy, confidence, and test stamina with 10 printable practice tests.

Printable eBook • Instant PDF access

View eBook



CALIFORNIA CAASPP

10 Full-Length Math Practice Tests

Build Grade 7 accuracy, confidence, and test stamina with 10 printable practice tests.

Printable eBook • Instant PDF access

View eBook

Need a different state?
Testinar has Grade 7 math practice books for state assessments across the country.

TESTINAR.COM/GRADES/7