KEY

Operations with Decimals

Objective

In this lesson, you will

add, subtract, multiply, and divide multidigit decimals using the standard algorithm for each operation.

Calculating with Decimal Numbers

Setting up the calculation for **decimal** numbers, make sure the decimal **points** and digits are lined up correctly.

Adding and Subtracting Decimal Numbers

When adding or subtracting decimal numbers, the decimal **points** of the numbers are lined up **vertically**. Add or subtract just as you would with whole numbers.

Ernie's favorite movie earned $50,782,954.83 in the first two weeks following its release, and its earnings were $25,992,412.50 in its third week. How much did the movie earn in the entire three-week period?

$50,782,954.83

+ $25,992,412.50

$76,775,367.33

Ernie saw his favorite movie of the year on the first day it hit the theaters, and his ticket cost $11.99. His friend Marcy saw the movie in its second week, and her ticket cost $8.20. What is the price difference of their tickets?

$11.99

- $8.20

$3.79

We know that Ernie's favorite movie of the year earned $50,782,954.83 in the first two weeks. We also know that the second week's ticket sales were $22,985,426.28. Using these two numbers, we can find how much the movie earned in the first week.

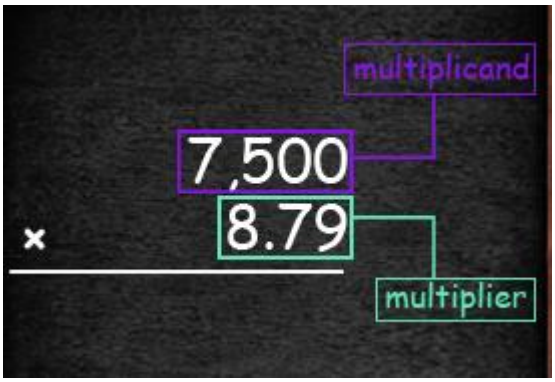
- Place the smaller number below the bigger number.
- Line up the decimals.
- Regroup numbers where necessary.

$$\begin{array}{r} \$50,782,954.83 \\ -\ \$22,985,426.28 \\ \hline \$27,797,528.55 \end{array}$$

For addition and subtraction of decimal numbers, set up the problem with the decimal points of the numbers lined up vertically and solve just as you would whole numbers.

Multiplying Decimal Numbers

Now let's take a look at how to multiply decimal numbers. Pay close attention to what happens with the decimal points.



Multiplicand is the amount in each set to be multiplied

Multiplier is the number of sets to be multiplied

Now you can try to multiply decimals numbers! Remember to move your decimal place after finding the product of your multiplication.

A record 7,500 tickets for Ernie's favorite movie were sold on its opening day in his hometown. If the average ticket price was $8.79, how much did the movie earn on its first day in Ernie's town?

	7,500
x	8.79
	67,500
+	**525,000**
+	**6,000,000**
	65,925.00

Check your answer:

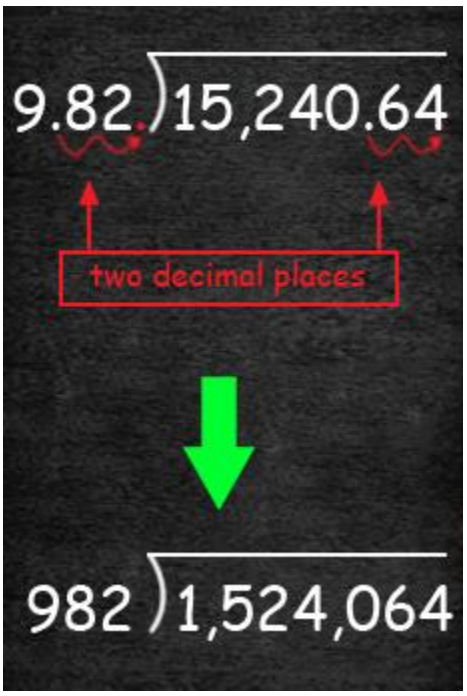
For multiplication, set the multiplicand and the multiplier flush to the right and multiply as if they were whole numbers. After completing the calculation of the product, count the total number of decimal places in the multiplier and the multiplicand, and place the decimal point in the answer that number of places to the left of its last digit.

Dividing Decimal Numbers

Now let's take a look at how to divide decimal numbers. First, you will need to convert the divisor to a whole number and then you can move the decimal point in the dividend the same number of digits.

The biggest theater in Ernie's hometown earned $15,240.64 from the first week's screenings of his favorite movie. If the average ticket price was $9.82, how many tickets were sold in the first week?

For division, convert the divisor (number to the left of the division symbol) to a whole number and move the decimal point in the dividend (number under the division sign) the same number of digits.



Now the problem can be solved.

Summary

Knowing how to calculate decimal numbers makes it easier to perform real-life computations involving prices, rates, mileage, speed, and distance. What tasks in your daily schedule most often use decimal numbers?

Answers will vary.