

Objectives

- Understanding Decimals and Place Values
- Adding/Subtracting Decimals
- Multiplying Decimals
- Dividing Decimals
- Converting a Fraction to a Decimal
- Converting a Decimal to a Fraction
- Caliper and Micrometer Introduction





Place Values with Decimals

- Examples: Write as a number in fraction form and decimal form
 - Two hundred seven and thirty-four hundredths
 - Sixteen thousandths

Rounding Decimals Rounding can be to a certain place value or a certain number of decimal places. Example: Round 54.4375 To the nearest tenth: To the nearest thousandth: To two decimal places: To three decimal places:

Try Yourself

- Round 43,992.53125
 - To one decimal place:
 - To the nearest tens place:
 - To the nearest hundredths place:
 - To three decimal places:
 - $^{\circ}\,$ To the nearest thousands place:

Adding/Subtracting Decimals

- For basic operations, we will usually use a calculator when working with decimals, but we will look at how to do each operation by hand.
- For addition and subtraction, make sure the place values are lined up, just as with whole numbers. The decimal place is brought directly down.
- Example: 12.75 + 6.375 + 9





Application Problem – Try Yourself

You are asked to cut some tubing to be certain lengths. The tolerance is ± 0.0625". List the shortest and longest allowable lengths of the parts.

Blueprint Length	Lowest Allowable Measurement	Highest Allowable Measurement
3.75"		
11.8125"		
18.0625"		
4.375"		



Multiplying Decimals

- 1. Multiply the numbers, ignoring the decimals.
- > 2. Count the total number of decimal places in the original problem.
- > 3. The total will be the number of decimal places in the multiplied answer.
- Example: 10.5 × 0.75

Dividing Decimals

- > 1. Write as a long division problem.
- > 2. Move the decimal to the right on the divisor (on outside) until the divisor is a whole number.
- 3. Move the decimal the same number of places on the dividend (on inside).
- 4. Divide normally and bring the decimal place directly up.
- Example: (Round to the nearest hundredth.) 4.375÷3.5



Application Problem - Try Yourself

- Complete the following weight and cost list for a project
- There are 12 inches in 1 foot

Metal Parts	Length of Part (in)	Length of Part (ft)	Weight (pounds per in)	Total Weight	Cost per Ft	Cost per Part
А	46.50"		0.317		\$3.17	
В	12.75"		0.574		\$8.60	
С	84.00"		0.250		\$2.12	
				W=		C=
				1		





Application Problem - Try Yourself

 Below are some typical rod diameters used in stick welding. Convert the diameters to the corresponding decimals

decimais.	Fraction	Decimal
	$\frac{1}{16}$ "	
	<u>5</u> 64	
	$\frac{3}{32}$ "	
	1 8"	
	<u>5</u> 32	
	$\frac{3}{16}$ "	

Converting a Decimal to a Fraction (Terminating Fractions)

- We've already been doing this a bit.
- However many decimal places there are, we put the number over 10, 100, 1000, ... Then reduce.
- Or, think about the way you would properly say the decimal.
- Example: 0.4

Example: 0.65

Converting a Decimal to a Fraction (Terminating Fractions)

- Example: 0.375
- Example: 0.46875



