



**Task Title: Calculating Tolerances  
in Manufacturing and Construction**

OALCF Cover Sheet – Practitioner Copy

**Learner Name:** \_\_\_\_\_

**Date Started:** \_\_\_\_\_

**Date Completed:** \_\_\_\_\_

**Successful Completion:** Yes  No

**Goal Path:** Employment  Apprenticeship

Secondary School  Post Secondary  Independence

**Task Description:** The learner will calculate measurement parameters based on tolerance.

**Main Competency/Task Group/Level Indicator:**

- Communicate Ideas and Information/Complete and create documents/B3.2a
- Understand and Use Numbers/Use measures/C3.2

**Materials Required:**

- Pen/pencil and paper and/or digital device
- Calculator or digital device with calculator function

## Learner Information

People working in skilled trades often need to determine whether a measurement is within acceptable parameters. This is called tolerance. This includes things like the length or width of materials, how flat a surface is, or angles of joints used for construction. Tolerance allows for small variations while ensuring safety and quality standards are met.

## Work Sheet

**Task 1: Calculate the minimum and maximum measurements based on the tolerance given. Complete the chart.**

Measurement	Tolerance	Minimum	Maximum
3.5 mm	+/- 0.02 mm		
28.01 inches	+/- 0.03 inches		
3.375 inches	+/- 0.002 inches		
4.63 inches	+/- 0.1 inches		

**Task 2: Determine whether each given measurement falls within tolerance. Complete the chart.**

Tolerance	Minimum	Maximum	Given Measurement	Is this measurement within tolerance?
3.450 mm +/- 0.05 mm			3.453 mm	
12.000 mm +/- 0.003 mm			12.098 mm	
22.01 +/- 0.01 mm			22.00 mm	
18.874 +/- 0.005			18.880 mm	

## Answers

**Task 1: Calculate the minimum and maximum measurements based on the tolerance given. Complete the chart.**

Measurement	Tolerance	Minimum	Maximum
<b>3.5 mm</b>	<b>+/- 0.02 mm</b>	3.48 mm	3.52 mm
<b>28.01 inches</b>	<b>+/- 0.03 inches</b>	27.98 inches	28.04 inches
<b>3.375 inches</b>	<b>+/- 0.002 inches</b>	3.373 inches	3.377 inches
<b>4.63 inches</b>	<b>+/- 0.1 inches</b>	4.53 inches	4.73 inches

**Task 2: Determine whether each given measurement falls within tolerance. Complete the chart.**

Tolerance	Minimum	Maximum	Given Measurement	Is this measurement within tolerance?
<b>3.450 mm +/- 0.05 mm</b>	3.400 mm	3.500 mm	<b>3.453 mm</b>	Yes
<b>12.000 mm +/- 0.003 mm</b>	11.997 mm	12.003 mm	<b>12.098 mm</b>	No
<b>22.01 +/- 0.01 mm</b>	22.00 mm	22.02 mm	<b>22.00 mm</b>	Yes
<b>18.874 +/- 0.005</b>	18.869 mm	18.879 mm	<b>18.880 mm</b>	No

Performance Descriptors

Levels	Performance Descriptors	Needs Work	Completes task with support from practitioner	Completes task independently
B3.2a	uses layout to determine where to make entries			
	begins to make some inferences to decide what information is needed, where and how to enter the information			
	follows instructions on documents			
C3.2	calculates using numbers expressed as whole numbers, fractions, decimals, percentages and integers			
	chooses and performs required operation(s); may make inferences to identify required operation(s)			
	selects appropriate steps to solutions			
	interprets, represents, and converts measures using whole numbers, decimals, percentages, ratios and simple, common fractions (e.g. $\frac{1}{2}$ , $\frac{1}{4}$ )			

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Levels	Performance Descriptors	Needs Work	Completes task with support from practitioner	Completes task independently
	uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)			

This task: Was successfully completed  Needs to be tried again

Learner Comments:

Instructor (print):

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Learner (print):

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