



Task Title: Calculating Gear Ratios

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 gear ratios based on a given formula.

Main Competency/Task Group/Level Indicator:

- Understand and Use Numbers/Use measures/C3.3

Materials Required:

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

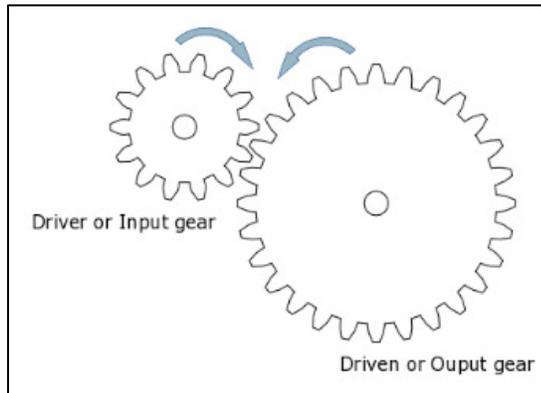
Task Title: CalculatingGearRatios_A_C3.3

Learner Information

Millwrights and other skilled tradespeople may need to troubleshoot, repair and maintain gears in drive train systems and other machinery.

Read "Gear Ratio Equation".

Gear Ratio Equation



The gear wheel being turned is the driver or input gear. The gear wheel being driven is the output gear.

The gear ratio is calculated by dividing the number of teeth on a driven gear by the number of teeth on the driver gear.

Gear Ratio Formula: Teeth on Driven Gear (Output) / Teeth on Driver Gear (Input)

For example: 60 teeth for the input and 30 teeth for the output is expressed as 30/60

Simplify the fraction to determine the gear ratio.

$$30/60 = 1/2$$

The gear ratio is 1 : 2

Work Sheet

Task 1: Calculate the gear ratio where the input is 75 and the output is 25.

Answer:

Task 2: Calculate the gear ratio where the input is 200 and the output is 50.

Answer:

Task 3a: Calculate the gear ratio where the input is 320 and the output is 20. Calculate the gear ratio where the input is 325 and the output is 25.

Answer:

Task 3b: Which gear ratio is larger?

Answer:

Answers

Task 1: Calculate the gear ratio where the input is 75 and the output is 25.

Answer: $25/75 = 1/3$. The gear ratio is 1 : 3

Task 2: Calculate the gear ratio where the input is 200 and the output is 50.

Answer: $50/200 = 1/4$. The gear ratio is 1 : 4

Task 3a: Calculate the gear ratio where the input is 320 and the output is 20. Calculate the gear ratio where the input is 325 and the output is 25.

Answer:

$20/320 = 4/64 = 1/16$. The gear ratio is 1 : 16

$25/325 = 5/65 = 1/13$. The gear ratio is 1 : 13

Task 3b: Which ratio is larger?

Answer:

$1/13$ is larger than $1/16$, so the ratio is larger in the second scenario.

Performance Descriptors

Levels	Performance Descriptors	Needs Work	Completes task with support from practitioner	Completes task independently
C3.3	calculates using numbers expressed as whole numbers, fractions, decimals, percentages and integers			
	manages unfamiliar elements (e.g. context, content) to complete tasks)			
	chooses and performs required operations; makes inferences to identify required operations			
	selects appropriate steps to solutions from among options			
	interprets, represents and converts measures using whole numbers, decimals, percentages, ratios and fractions			
	uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)			

Task Title: CalculatingGearRatios_A_C3.3

This task: Was successfully completed Needs to be tried again

Learner Comments:

Instructor (print):

Learner (print):
