

Name: _____ Block: _____ Date: _____

Introduction to Robotics: Measured Distance Formula

Updated: Aug 2016

Objective: Converting wheel circumference to rotations or degrees **Note:** Based on standard 56mm wheel

Key Terms:

- Formula: Mathematical statement, especially an equation, of a fact, rule, principle, or other logical relation.
- Diameter: A straight-line segment passing through the center of a figure, especially of a circle or sphere, and terminating at the periphery.
- Radius: A line segment that joins the center of a circle with any point on its circumference.
- Circumference: The boundary line of a circle.
- Pi: A transcendental number, approximately 3.14, represented by the symbol π , that expresses the ratio of the circumference to the diameter of a circle and appears as a constant in many mathematical expressions.

Measured Distance Formula:

Distance you want your robot to go in cm	÷	17.584cm	=	Wheel Rotations	X	360 degrees	=	
		Wheel diameter is approximate 5.6cm x 3.14 = 17.584cm		Could go with this or continue for greater accuracy		Degrees in a circle		Place this number in the correct move block

Try this first: 30cm ÷ 17.584cm = 1.7 rotations X 360 = 614° - place degrees into your move block - duration

TASK A: Program your robotic device to travel exactly 62cm forward at 40% power.

_____	÷	_____	=	_____	X	360°	=	_____
		Wheel circumference		Rotations		Degrees in a circle		

TASK B: Program your robotic device to travel exactly 54cm forward at 70% power.

_____	÷	_____	=	_____	X	360°	=	_____
		Wheel circumference		Rotations		Degrees in a circle		

