

FIRST LEGO LEAGUE - Ontario

**Questions**

\*if you didn't do one of the missions mentioned use hypothetical values to answer the questions

Question 1 Math	What distance did the cuboid travel during its time being rotated around. Use $C = 2\pi R$ and show your work.
<p>The radius of the turn was 16 cm. That means the total circumference of the circle was <math>C = 2 \times \pi \times 16</math> or 100.5 cm. Since it only completed a <math>\frac{1}{4}</math> turn, the distance it traveled was 25.1 cm.</p>	
Question 2 Science	Explain how you choose your path and mission field layout to make your run as time efficient as possible. Make sure to use the word efficiency in your answer.
<p>Example: We decided on the order we wanted to take and then lined up each mission where the robot would end up, making sure we didn't have to drive any extra distance.</p>	
Question 2 Science	Calculate the work your robot did on the wall as it hit the bump sensor. Make sure to show ALL of your steps you took to get to your answer ( $W = F \times D$ ).
<p><math>W = F \times D</math>  <math>W = F \times 0</math>  <math>W = 0 \text{ N (since the wall did not move)}</math></p>	
Question 3 Math	Circle the correct answer. The number of missions you succeed in is a <u>discrete</u> /continuous value. The time your robot took is a discrete/ <u>continuous</u> value.
Question 4 Science	What side effects did see as a result of some of your attempts to achieve your desired outputs? What was the cause of these side effects?
<p>Example: When we tried to trap the cuboid we kept landing on top of it so we needed to come up with a way to be more accurate. The desired</p>	



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output was achieved once we told our program (input) to line up against the wall before proceeding.