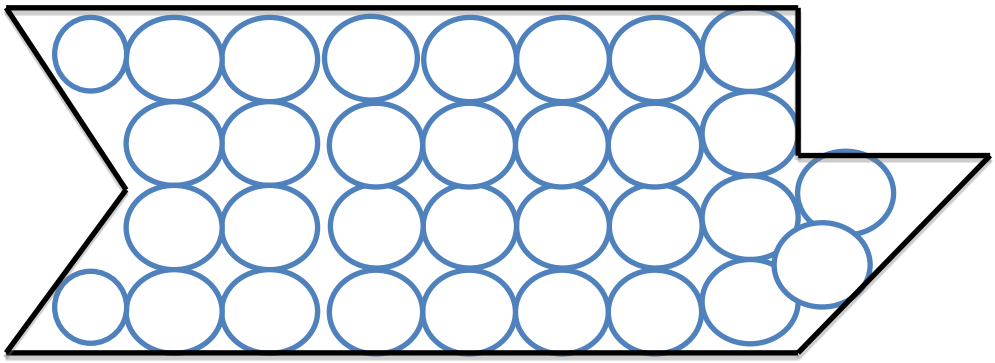
Name: _____ Date: _____ Class: _____

Random Numbers Worksheet Answer Key

Exploration Question: What mathematical or geometric concepts can we use to solve the following engineering challenge: *How to move a robot vacuum cleaner in order to most efficiently clean an entire irregularly shaped floor area?*

Have the robot go in circles to cover as much of the floor area as possible (see the drawing below).
Alternative answer: Have the robot go in smaller and smaller squares or any other geometric shape.

Sketch: Draw your plan for path the robot should take to clean an irregularly shaped room.



Observations: What is the difference between the first line of students and the second line of students?
The first line of students has a height order, whereas the second line of students is random and thus has no noticeable order or pattern.

Definition: What is a random number?
A random number is a number that bears no systematic relationship to the number before it.

Observations: How did the robot move around the room?
The robot moved straight ahead until it detected an obstacle by using the ultrasonic sensor. Then, the robot moved backwards for one wheel rotation, turned a random number of degrees, then continued to move straight ahead until it detected another obstacle.