QUIZ / Wheel Size Matters - Rotation

Put a check ☑ in the ☐ next to the correct answer.

1. How does the modified Squarebot differ from the original Squarebot?
   - ☐ The modified Squarebot is battery-powered.
   - ☐ The power setting for the modified Squarebot was increased.
   - ☐ The gears for the front wheels were removed on the modified Squarebot.
   - ☐ The front wheels on the modified Squarebot were replaced by larger wheels.

2. What is kept constant in this investigation?
   - ☐ Wheel size
   - ☐ Type of robot
   - ☐ The distance the robot travels.
   - ☐ Rotations of the motor axles.

3. Which variable is the dependent in this investigation?
   - ☐ The distance the robot travels
   - ☐ Rotations of the motor axles
   - ☐ Wheel size
   - ☐ Type of robot

4. What are systematic errors?
   - ☐ Errors that affect data different ways at different times
   - ☐ Errors that are caused by human judgments
   - ☐ Errors that we are unable to detect
   - ☐ Errors that always affect data the same way

5. What are random errors?
   - ☐ Errors that always affect data the same way
   - ☐ Errors that are caused by human judgments
   - ☐ Errors that affect data different ways at different times
   - ☐ Errors that we are unable to detect

6. Which of the following would most likely be a systematic error?
   - ☐ Measuring the distance the robot travels
   - ☐ Friction
   - ☐ Wheel slippage
   - ☐ None of the above, since they are all random
7. Interpolation of data values means predicting a new value
   o between existing values
   o beyond existing values
   o from a new data set
   o none of the above

8. Extrapolation of data values means predicting a new value
   o between existing values
   o from a new data set
   o beyond existing values
   o none of the above

9. Given the following five distances measured in inches, calculate the average distance: 43.8 in., 47.2 in., 41.1 in., 44.5 in., 42.6 in.
   o 219.2 in.
   o 43.84 in.
   o 45.9 in.
   o 42.6 in.

10. Convert 47.8 in. to centimeters.
    o 18.8 cm.
    o 12.1 cm.
    o 188.1 cm.
    o 121.4 cm.

11. Given the plot shown below (Figure 1), about how far would a wheel with a diameter of 7 in. travel in five rotations?
    o 40 in.
    o 55 in.
    o 70 in.
    o 100 in.

12. Given the plot shown below (Figure 1), what is the approximate diameter of a wheel that traveled 110 in. in five rotations?
    o 17 in.
    o 13 in.
    o 7 in.
    o 110 in.
Figure 1: 5 Rotations