Slope and Similar Triangles Worksheet

Discuss each of the questions below with your partner. Then answer them, showing work where necessary.

1. Do the points (1, 5), (2.5, 9.5) and (4.5, 15.5) lie on the same line? How do you know? Prove your answer.

2. Do the points (2, 5), (4, 3.5), and (7, 1.5) lie on the same line? How do you know? Prove your answer.

3. The video states that the slope (or steepness) of a nonvertical line is the same between any two points along that line. Use the idea of similar triangles to prove this.

4. Jason has created another robot. He wants to repeat the speed check, so he gathers data about the robot's placement at different times. Based on the data provided, is the robot traveling at constant speed? Prove your answer.

Distance (laps)	Time (min)
1	0.75
3	2.25
5	3.75
10	7.50

5. Joe is using similar triangles to find the slope of a line, as shown in the video. He finds that all three right triangles that he drew along the line are similar. But then he wonders whether it is possible to draw a right triangle along the same line that is *not* similar to the other ones he has drawn. Is it possible or not? Explain your reasoning.

6. One common formula for slope is $\dfrac{(y_2-y_1)}{(x_2-x_1)}$. Explain what this formula means and why it is used to calculate the slope between two points.