Problem 1

The first plot (leftmost) is the most linear, as the data points align closely to a straight line. This indicates a consistent, linear relationship between x and y, with minimal deviation.

**Answer:** The sensor represented by the first plot (leftmost) is the most linear.

Problem 2

I first plot the measurements in a graph:

After visually inspecting the lines, it appears that sensor 2 and 3 appears to be the most stable. Since this task describes a constant speed measured, a sensor that gives a more stable output indicate that the values are closer to another and furthermore describes a better precision. Then I calculate the standard deviation and the mean value to verify the theory. I then color grade the different values according to how “close” they were to the optimal value.



**Answer:** Sensor 1 or 2 is likely the best choice if one needs a balance of accuracy and precision. If consistency is prioritized and can correct for inaccuracy, Sensor 3 or Sensor 4 could be suitable, depending on whether an over- or underestimation is more acceptable.

Problem 3

This is a quite straightforward problem as it can be solved with the linear equation formula:

Looking at the graph, the line should intersect the y-axis at y=9.9:

En bild som visar linje, Graf, diagram, nummer

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This gives us the result , where and . Insertion of 7V in the formula:

**Answer**: 17.6 meters.