Hubble Constant

Part I

1. Get the various data points for recession velocity, and distance.
   1. Tape a rubber band at 10 cm on a meter stick, stretch it to the 70 cm mark, and make 6 marks, one every 10 cm from 20 cm to 70 cm. (at 20, 30, 40, 50, 60 and 70 cm)
   2. Suppose a deity stretched the end of the rubber band 10 cm per second for 3 seconds. (i.e. the end moves from 70 cm to 100 cm)
   3. For each mark, use the position/time data to calculate the average recession velocity of the mark. (v = displacement/time)
2. **Make a graph** of recession velocity (vertical) vs original distance (horizontal). Fit a straight line to it, and display the equation on the chart.
3. **Calculate the “Hubble” constant** for our expanding universe in (cm/s) per cm of distance (We have to pick weird units. H will be the slope of the line) **Show your calculations of this.** Convert to (km/s)/MPc. **Show the conversion**.

Part II – Answer questions citing data to support your answers.

1. Does your Hubble graph suggest a straight line?
2. Why don’t we notice the expansion of the universe in our neighborhood?

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| Mark | Position at t = 0 s | Position at t = 3 s | Average  Velocity |
| #1 | 20 cm |  |  |
| #2 | 30 cm |  |  |
| #3 | 40 cm |  |  |
| #4 | 50 cm |  |  |
| #5 | 60 cm |  |  |
| #6 | 70 cm | 100 cm | 10 cm/s |