PhyzJob: Line Spacing Math
WAVE OPTICS MATH ESSENTIALS

1. There are 100 evenly-spaced centimeter numbers on a meterstick. That is, 100 numbers per meter.
a. How far—as a fraction of a meter—are the numbers from each other?

1/100 m

b. Rewrite the answer as a decimal value.

0.01 m

2. There are 1000 evenly-spaced millimeter lines on a meterstick.
a. How far—as a fraction of a meter—are the lines from each other?

b. Rewrite the answer as a decimal value.

3. On the other side of the meterstick, there are 39 evenly-spaced inch numbers.
a. How far—as a fraction of a meter—are the numbers from each other?

b. Rewrite the answer as a decimal value.

4. There are 624 sixteenth of an inch marks on the meterstick.
a. How far—as a fraction of a meter—are the marks from each other?

b. Rewrite the answer as a decimal value.

5. Suppose all 624 marks could be shrunk down and placed between two neighboring millimeter marks on the other side of the meterstick. Then there would be 624 marks per millimeter.
a. How far—as a fraction of a ***millimeter***—would the marks be from each other?

b. Since there are 1000 millimeters in a meter, converting a measurement in millimeters to meters requires division by 1000. That is, 1 millimeter is 1/1000 meters, 248 millimeters is 248/1000 meters, etc. How far—as a fraction of a ***meter***—would the marks described in part a be from each other?

c. Rewrite the answer as a decimal value. Then rewrite the value in micrometers.

6. How far—in meters—are neighboring lines from each other if they have the *line density* values given?
a. 75 lines/mm b. 360 lines/mm c. 840 lines/mm

7. Rewrite answers for question 6 in μm. a. _____ b. _____ c. _____

3.a. 1/39 m b. 0.026 m 4.a. 1/624 m b. 0.0016 m 5.a. 1/624 mm b. 1/624,000 m c. 0.0000016 m = 1.6 μm 7.a. 13 μm b. 2.8 μm c. 1.2 μm