

# Math Magic: How Long is a Million Dollars?

Issue #9: Visualizing Large numbers: preview w. Worksheet (grades 4-12) [An Index of All Math Magic Activities](#)

## SILENTLY SETTING THE SCENE

Standing before one of my seventh or eighth grade math classes I reached into my back pocket, pulled out my wallet, and unfurled a string of one-dollar bills attached end to end with scotch tape. It was about my height, six feet. Once the laughter subsided, some observant students noted that there were 12 ones attached.

Then I posed the question, "How long would a million one dollar bills taped end to end be?"

## DIRECTIONS TO THE STUDENTS:

Find and work with a partner to do the following:

- 1) List what information or materials you will need to solve this problem. (A [Worksheet](#) may follow.)
- 2) Estimate your answer in the most appropriate measurement units. Compare the actual computation with the estimate.
- 3) Finally, if you can, express this length as a distance between two locations (cities) you know.
- 4) Check your results with others or the teacher.

WHAT MATERIALS & INFO WOULD YOU THE READER SURMISE ARE NEEDED FOR THIS?

---

---

---

## SOME POSSIBLE MATERIALS & INFO.

- the length of a one dollar bill and a ruler to measure in US or metric measurement
- a calculator to help compute, though this will not be used at first
- the discussion of meaningful measurement: here two dollars measure one foot
- the number of feet in a mile (5,280 feet) or kilometers if metric measure is used

## ESTIMATING THE RESULTS

\$1 bill is about 6 inches or 1/2 foot in length

1 million 1/2 feet = 500,000 feet

500,000 feet divided by 5000 feet in mile will be about 100 miles--actually less since 5000 is rounded down from 5,280 feet.

Model computing the actual answer (if possible without a calculator to practice computation skills).

$$5280 \overline{) 500,000} \approx 94.69 \approx 95 \text{ miles}$$

Using a map one can determine what cities are about 95-100 miles from here. Sacramento is one such city, about 100 miles from Redwood City.

**So, one million one dollar bills attached end to end would stretch about 100 miles, or from here to Sacramento.**

## EXTENDING THE CONCEPT

**How far would a billion ones stretch?** See the [worksheet](#) I handed out to my students which includes more information to solve this and organize the above.

SOLUTION FOR INSTRUCTOR: A billion one dollar bills would be 1000 times longer or 100,000 miles. This is approximately THREE times around the circumference of the earth which is about 30,000 miles!

