4. Average annual rainfall totals for cities in New York are listed below.

Rochester	0.97 meters
Ithaca	0.947 meters
Saratoga Springs	1.5 meters
New York City	1.268 meters

a. Put the rainfall measurements in order from least to greatest. Write the smallest total rainfall in word form and expanded form.

0.947 m, 0.97 m, 1.268 m, 1.5 m

nine hundred fourty seven thousandths

$9 \times \frac{1}{10} + 4 \times \frac{1}{100} + 7 \frac{1}{1000}$

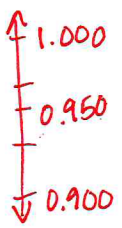
b. Round each of the rainfall totals to the nearest tenth.

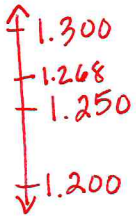
$0.947 \approx 0.9$ m

$0.97 \approx 1.0$ m

$1.268 \approx 1.300$ m

$1.5 \approx 1.5$ m





c. Imagine New York City's rainfall is the same every year. How much rain would fall in 100 years?

1.268m x 100 = 126.8 m

126.8m would fall in 100 years.

d. Write an equation using an exponent that would express the 100-year total rainfall. Explain how the digits have shifted position and why.

$1.268 \text{m} \times 10^2 = 126.8 \text{m}$

Each digit shifts 2 places to the left when multiplying by 10^2. The value of each digit becomes 100 times as large.