**Percentages and Proportions: Lake Mead**

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**More climate change resources at:** https://mcwg.github.io/climate/

<https://www.nps.gov/lake/learn/drought.htm>

<https://e360.yale.edu/series/crisis-on-the-colorado>

**(Involves Units and could involve Scientific Notation)**

The lake is currently at 35% capacity. The total capacity is 9.3 trillion gallons of water. The lake has not been full since the years 1983 and 1999.

1. What percentage of Lake Mead’s water is currently missing?

ANS: $100−35=65$% full

1. Approximately how much water is there currently in the lake? (In gallons.)

ANS: $0.35×9.3=3.255$ trillion gallons

1. I gallon is approximately 0.134 cubic feet. How much water is currently in Lake Mead in cubic feet?

ANS: 9.3 trillion gallons $9.3×0.134=1.2465≈1.25$ trillion cubic feet of water.

1. How many gallons of water are missing from Lake Mead? (Compared to when it is full.)

ANS: Either $9.3−3.255=6.045$ trillon gallons or $0.65×9.3=6.045$ trillion gallons

1. How many million gallons is 9.3 trillion gallons?

ANS: 1 trillion is a thousand thousand million. Thus 9.3 trillion is 9,300,000 million gallons.

1. How many gallons is 9.3 trillion?

ANS: 9.3 trillion = 9,300,000,000,000 gallons.

1. Write 9.3 trillion gallons in gallons in scientific notation.

ANS: 9.3 trillion gallons is $9,300,000,000,000=9.3×10^{3}×10^{3}×10^{6}=9.3×10^{12}$ gallons. Alternatively know that a trillion is $10^{12}$.

1. A school swimming pool for competitions holds about 100,000 gallons of water. How many swimming pools would it take fill Lake Mead when it is full?

ANS: 9.3 trillion/100,000 = 9,300,000,000,000/100,000 = 93,000,000 = 93 million swimming pools. Alternatively 9.3 trillion/100,000 ${9.3×10^{12}}/{10^{5}}=9.3×10^{7}$.

1. How many swimming polls worth of water have been lost? (By evaporation or over-usage.)
ANS: $6.045$ trillion gallons, so 6.045 trillion/100,000 = 60.45 *million* swimming pools. This is more than one swimming pool *per person* of those who are consuming that water. (Including babies!)