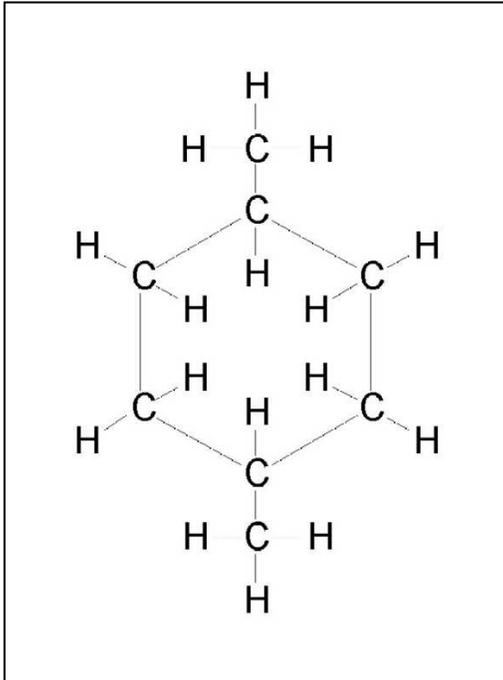


Parts Per Hundred (pph)



A common way of describing the various components of a population of objects is by the number of parts that they represent for every 100, 1000 or 1 million items that are sampled.

For instance, if there was a bag of 100 balls: 5 were red and 95 were white, you would say that the red balls represented 5 parts per hundred (5 pph) of the sample.

This also means that if you had a bag with 300 balls in the same proportions of red and white balls, the red balls would still be '5 parts per hundred' even though there are now 15 red balls in the sample ($15/300 = 5/100 = 5 \text{ pph}$).

For each of the situations below, calculate the parts-per-hundred (pph) for each sample.

Problem 1 - Your current age compared to 1 century

Problem 2 - 10 cubic centimeter (10 cc) of food coloring blended into 1 liter (1000 cc) of water.

Problem 3 - The 4 brightest stars in the Pleiades star cluster, compared to the total population of the cluster consisting of 200 stars.

Problem 4 - One day compared to one month (30 days)

Problem 5 - Five percent of anything.

Problem 6 - The figure above shows the atoms of hydrogen (H) and carbon (C) in the molecule of dimethylcyclohexane. What is the pph of the carbon atoms in this molecule?

Problem 1 - Your current age compared to 1 century

Answer: If your current age is 14 years, then compared to 100 years, your lifetime is **14 pph of a century**.

Problem 2 - 1 cubic centimeter (10 cc) of food coloring blended into 1 liter (1000 cc) of water.

Answer: 10 cc / 1000 cc is the same as 1 / 100 so the food coloring is **1 pph of a liter**.

Problem 3 - The 4 brightest stars in the Pleiades star cluster, compared to the total population of the cluster consisting of 200 stars.

Answer: 4 stars / 200 members = 2 / 100 = **2 pph of the cluster stars**.

Problem 4 - One day compared to one month (30 days)

Answer: 1 day / 30 days = 0.0333 so 0.033 x 100 = **3.3 pph of a month**.

Problem 5 - Five percent of anything.

Answer: 5 % = 5 / 100 = **5 pph of anything**.

Problem 6 - The figure above shows the atoms of hydrogen (H) and carbon (C) in the molecule of dimethylcyclohexane. What is the pph of the carbon atoms in this molecule?

Answer: There are a total of 24 atoms in this molecule. There are a total of 8 carbon atoms, so the fraction is $8/24 = 1/3$ which equals $0.333 \times 100 =$ **33 pph of the total atoms**.