

Acids and Bases: Dilution

1. In order to maintain the pH in an electroplating bath, strong acids are added. If a 10L sample of 1.0 mol/L HCl(aq) is added to 990 L of water, the pH of the HCl(aq) is _____ by _____

a	Increased	1
b	Increased	2
c	Decreased	1
d	Decreased	2

2. Nannoek and Erin dilute a 50 mL sample of HCl(aq) with 75 mL of water. They will expect the concentration of the acid to ____ and the pH of the acid to ____

a	Increase	Increase
b	Increase	Decrease
c	Decrease	Decrease
d	Decrease	increase

3. A 25 mL sample of HCl(aq) with a concentration of 2.0 mol/L has 75 mL of distilled water added to it. The pH of the new diluted solution is ____

a	0.30
b	0.50
c	0.67
d	2.0

4. A 50 mL sample of NaOH(aq) with a concentration of 1.7 mol/L has 50 mL of distilled water added to it. The pH of the new diluted solution is ____

a	0.86
b	0.071
c	14.23
d	13.93

5. A 50 mL sample of HCl(aq) with a concentration of 0.10 mol/L is diluted to a new pH of 2.00. The amount of water added to the sample is ____ mL

a	50
b	4.5×10^2
c	5.0×10^2
d	2.5

6. A 100 mL sample of NaOH(aq) with a concentration of 1.00 mol/L is diluted to a new pH of 13.000. The amount of water added to the sample is ____ mL

a	1.0×10^3
b	7.69
c	1.00×10^{15}
d	900

7. **Numerical Response**

Left justify your answer in the boxes provided below:

--	--	--	--

A 25 mL sample of HCl(aq) with a concentration of 2.0 mol/L has 0.15 L of distilled water added to it. The pH of the new diluted solution is ____

8. **Numerical Response**

Left justify your answer in the boxes provided below:

--	--	--	--

A 100 mL sample of NaOH(aq) with a concentration of 1.7 mol/L has 50 mL of distilled water added to it. The new [NaOH(aq)] is ____ mol/L

9. **Numerical Response**

Left justify your answer in the boxes provided below:

--	--	--	--

A 50 mL sample of HCl(aq) with a concentration of 0.10 mol/L is diluted to 0.056 mol/L. The amount of water added to the sample is ____ mL

10. **Numerical Response**

Left justify your answer in the boxes provided below:

--	--	--	--

A 100 mL sample of NaOH(aq) with a concentration of 1.00 mol/L is diluted to 0.750 mol/L The amount of water added to the sample is ____ mL

Solutions:

1. B
2. D
3. B
4. D
5. B
6. D
7. 0.29
8. 1.1
9. 39
10. 33.3