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 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 |

1. 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 |

1. A 25 mL sample of HCl(aq) with a concentration of 2.0  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 |

1. A 50 mL sample of NaOH(aq) with a concentration of 1.7  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 |

1. A 50 mL sample of HCl(aq) with a concentration of 0.10  is diluted to a new pH of 2.00. The amount of water added to the sample is \_\_\_\_ mL

|  |  |
| --- | --- |
| a | 50 |
| b | 4.5 x 102 |
| c | 5.0 x 102 |
| d | 2.5 |

1. A 100 mL sample of NaOH(aq) with a concentration of 1.00  is diluted to a new pH of 13.000. The amount of water added to the sample is \_\_\_\_ mL

|  |  |
| --- | --- |
| a | 1.0 x 103 |
| b | 7.69 |
| c | 1.00 x 1015 |
| d | 900 |

1. **Numerical Response**

Left justify your answer in the boxes provided below:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

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

1. **Numerical Response**

Left justify your answer in the boxes provided below:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

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

1. **Numerical Response**

Left justify your answer in the boxes provided below:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

A 50 mL sample of HCl(aq) with a concentration of 0.10  is diluted to 0.056 The amount of water added to the sample is \_\_\_\_ mL

1. **Numerical Response**

Left justify your answer in the boxes provided below:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

A 100 mL sample of NaOH(aq) with a concentration of 1.00  is diluted to 0.750 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