pH Calculations

Find the pH of the following acidic solutions:

1) A 0.001 M solution of HCl (hydrochloric acid).

2) A 0.09 M solution of HBr (hydrobromic acid).

3) A 1.34×10^{-4} M solution of hydrochloric acid.

4) A 2.234×10^{-6} M solution of HI (hydroiodic acid).

5) A 7.98×10^{-2} M solution of HNO_3 (nitric acid).

6) A solution with a volume of 12 L containing 1 mole of hydrochloric acid.

7) 735 L of solution containing 0.34 moles of nitric acid.

8) 1098 L of a solution containing 8.543 moles of hydrobromic acid.

9) 660 L of a solution containing .0074 moles of hydrochloric acid.

10) 120 mL of a solution containing 0.005 grams of hydrochloric acid.

11) 1.2 L of a solution containing 5.0×10^{-4} grams of hydrobromic acid.

12) 2.3 L of a solution containing 4.5 grams of nitric acid.

13) 792 mL of a solution containing 0.344 grams of hydrochloric acid..

14) 100 mL of a solution containing 1.00 grams of nitric acid.

15) 8.7 L of a solution containing 1.1 grams of nitric acid.

16) 1.5 L of a solution containing 5.6 grams of hydroiodic.

17) 10.7 L of a solution containing 0.01 grams of hydrochloric acid.

18) 8,000 mL of a solution containing 6.7 grams of nitric acid and 4.5 grams of hydrochloric acid.

19) 150,000 L of a solution containing 45 grams of nitric acid and 998 grams of hydrobromic acid.

20) 50 L of a solution containing 0.09 grams of HCl, 0.9 grams of HBr, 9.0 grams of HI, and 90.0 grams of HNO_3.

pH Calculations – Answer Key

1) A 0.001 M solution of HCl (hydrochloric acid). **3.00**

2) A 0.09 M solution of HBr (hydrobromic acid). **1.05**

3) A 1.34×10^{-4} M solution of hydrochloric acid. **3.87**

4) A 2.234×10^{-6} M solution of HI (hydroiodic acid). **5.65**

5) A 7.98×10^{-2} M solution of HNO_3 (nitric acid). **1.10**

6) 12 L of a solution containing 1 mole of hydrochloric acid. **1.08**

7) 735 L of a solution containing 0.34 moles of nitric acid. **3.33**

8) 1098 L of a solution containing 8.543 moles of hydrobromic acid. **2.11**

9) 660 L of a solution containing .0074 moles of hydrochloric acid. **4.95**

10) 120 mL of a solution containing 0.005 grams of hydrochloric acid. **3.64**

11) 1.2 L of a solution containing 5.0×10^{-4} grams of hydrobromic acid. **5.28**

12) 2.3 L of a solution containing 4.5 grams of nitric acid. **1.51**

13) 792 mL of a solution containing 0.344 grams of hydrochloric acid. **1.92**

14) 100 mL of a solution containing 1.00 grams of nitric acid. **0.80**

15) 8.7 L of a solution containing 1.1 grams of nitric acid. **2.70**

16) 1.5 L of a solution containing 5.6 grams of hydroiodic acid. **1.53**

17) 10.7 L of a solution containing 0.01 grams of hydrochloric acid. **4.59**

18) 8,000 mL of a solution containing 6.7 grams of nitric acid and 4.5 grams of hydrochloric acid. **1.54**

19) 150,000 L of a solution containing 45 grams of nitric acid and 998 grams of hydrobromic acid. **4.06**

20) 50 L of a solution containing 0.09 grams of HCl, 0.9 grams of HBr, 9.0 grams of HI, and 90.0 grams of HNO_3. **1.52**