pH Calculations

Find the pH of the following acidic solutions:

- 1) A 0.001 M solution of HCI (hydrochloric acid).
- 2) A 0.09 M solution of HBr (hydrobromic acid).
- 3) A 1.34 x 10^{-4} M solution of hydrochloric acid.
- 4) A 2.234 x 10^{-6} M solution of HI (hydroiodic acid).
- 5) A 7.98 x 10^{-2} M solution of HNO₃ (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 HNO₃.

pH Calculations – Answer Key

1)	A 0.001 M solution of HCI (hydrochloric acid). 3.00
2)	A 0.09 M solution of HBr (hydrobromic acid). 1.05
3)	A 1.34 x 10 ⁻⁴ M solution of hydrochloric acid. 3.87
4)	A 2.234 x 10^{-6} M solution of HI (hydroiodic acid). 5.65
5)	A 7.98 x 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 x 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
- 8,000 mL of a solution containing 6.7 grams of nitric acid and 4.5 grams of 18) 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
- 50 L of a solution containing 0.09 grams of HCl, 0.9 grams of HBr, 9.0 grams of 20) HI, and 90.0 grams of HNO₃. 1.52