

Unit 12 Solutions, Acids & Bases Worksheet

Solutions

1. Solubility refers to the grams of _____ per 100 g of _____.
2. Loose sugar dissolves much faster than a sugar cube because loose sugar has _____.
3. Sugar will dissolve (*more quickly, more slowly, the same*) in iced tea if you stir it.
4. You can make a solid solute dissolve more quickly in a solvent by (*heating it, cooling it, increasing its pressure*).
5. Water can dissolve charged particles because water is _____.
6. An unsaturated solution is one that can: _____.
7. What happens when a supersaturated solution cools down?
_____.
8. In a solution, the substance that is being dissolved is the _____.
9. A substance that does NOT conduct an electric current when it forms a solution is a (*strong electrolyte, weak electrolyte, non-electrolyte*).
10. Increasing the surface area of a solid (*speeds, slows, does not change*) the rate of dissolving.
11. When a gas is dissolved in a liquid, the gas dissolves faster if the liquid is (*heated, cooled, stirred*).
12. The concentration of a solution that contains a large amount of solute in the solvent could be described as _____.
13. A molecule that is positively charged on one end and negatively charged on the other end is _____.
14. The amount of solute that can be dissolved in a specific amount of solvent at a given temperature is its _____.
15. A solid solute's _____ can often be increased by heating.
16. Shaking or stirring a solution will make a solid solute _____ more quickly.
17. A solute will dissolve more quickly if you increase its _____ by breaking it into small pieces.
18. Solutes dissolve faster if the solvent is _____.
19. Water is a(n) _____ compound because its shared electrons are not spread evenly throughout each molecule.
20. Because so many substances can dissolve in water, it is often referred to as the _____.
21. A(n) _____ solution is an unstable system.

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22. A saturated solution contains the greatest quantity of _____ that will dissolve in a given quantity of _____.
23. Soap works because the negatively charged end of the hydrocarbon chain dissolves in _____, whereas the neutral end dissolves in _____.
24. A crystal of solute was dropped into a solution, and it dissolved. The original solution was _____.
25. A solution that contains all of the solute it can hold at a given temperature is _____.
26. If a crystal of solute is dropped into a solution and other crystals appear, the solution was _____.
27. Stirring (*increases, decreases*) the speed of dissolving of a solid in a liquid
28. Sugar is a molecule that does not ionize when dissolved in water. Will a sugar solution conduct electricity? Why or why not?

29. Explain why a supersaturated solution is an unstable system.

Acids and Bases

30. Acids are substances that form _____ (H₃O⁺) when dissolved in water.
31. When dissolved in water, all acids will _____ electricity.
32. A solution that is mildly acidic would have a pH of approximately ____.
33. A bottle's label indicates that the substance inside has a pH of 13. This tells you that the substance is a (*weak, strong*) _____.
34. When a solution of an acid reacts with a solution of a base, hydronium ions react with hydroxide ions to form two products: _____ and _____.
35. What is a *salt*? _____
36. A(n) _____ is a substance that produces H⁺ ions in a water solution.
37. A(n) _____ is a substance that produces OH⁻ ions in a solution.

38. _____ measures how acidic or basic a substance is.
39. A(n) _____ changes color in the presence of an acid or a base.
40. Bitter taste and a slippery feel are clues that a solution is probably a(n) _____.
41. _____ of a solution refers to the ease with which an acid or base forms ions in solution.
42. A base that only partly ionizes in a solution is (*strong, neutral, weak*).
43. pH measures the _____ of hydronium ions in a solution.
44. Coffee has a pH of about 5. Coffee is _____.
45. A(n) _____ is a compound that can change color in a solution, depending on whether the solution is acidic or basic.
46. An acid is a substance that donates hydrogen ions (H^+) to form _____ ions when dissolved in water.
47. A(n) _____ is a substance that either contains hydroxide ions (OH^-) or reacts with water to form hydroxide ions.
48. Apple juice has a pH of 3, and stomach acid has a pH of 2. This means that stomach acid is (*more, less, equally*) acidic than apple juice.
49. pH is a measure of the _____ (H_3O^+) concentration of a solution.
50. In a _____ reaction, hydronium ions from acids react with hydroxide ions from bases to produce water and salt.
51. Salts are _____ formed when acids and bases react.
52. Because lye contains hydroxide ions, it is a _____.
53. What factor determines the strength of an acid or a base? _____
54. How is the concentration of an acid or base different from the strength of an acid or base? _____
55. What is an acid? _____
56. What is a base? _____
57. List two common acids that are NOT harmful to the body when ingested and a product in which each is used: _____ used in _____ and _____ used in _____

58. List one common base that is NOT harmful to the body when ingested and a product in which it is used: _____ used in _____

59. Identify the following pHs as a **strong base**, a **weak acid**, a **weak base**, or a **strong acid**:

2 _____	5 _____
8 _____	11 _____

Tell if the following is an acid (A), a base (B), neutral (N), or could be either an acid or a base (AB).

60. In solution, it feels slippery. _____
61. Is also known as a proton donor. _____
62. It has a bitter taste. _____
63. It has the chemical formula HNO_3 . _____
64. It can be corrosive. _____
65. Has a pH of 7. _____
66. It reacts with an indicator to produce a change in its color. _____
67. It has a sour taste. _____
68. Is also known as a proton acceptor. _____
69. It has the chemical formula $Ca(OH)_2$. _____
70. It forms hydronium ions in water. _____