|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 8 | 9 | 10 | 11 | 12 | 13 |
| Ind A | | Yellow | | Orange | | | Red | | | | | | | | |
| Ind B | | Red | Blue | | | | | | | | | Yellow | | | |
| Ind C | | Blue | | | | | | | Green | Yellow | | | | | |
| Ind D | | Red | | | Purple | | | | | Blue | | | | | |
| Ind E | | Colourless | | | | | | Blue | | | | | Dark blue | | |

**pH Class Worksheet**

1. Which indicator would you use to find a strong acid\_\_\_\_\_\_\_\_\_\_\_, a strong base\_\_\_\_\_\_\_ and a neutral \_\_\_\_\_\_\_\_solution? \_\_\_\_\_\_\_\_\_\_\_\_
2. Which indicator would you use to find a weak acid? \_\_\_\_\_\_\_
3. What color would indicator D give if a substance with a pH of 5 is used? \_\_\_\_\_\_
4. What color would indicator B give if it has a pH of 9? \_\_\_\_\_\_
5. What is the pH of a substance if it becomes yellow with A and blue with B? \_\_\_\_\_
6. What is the pH of a substance if it becomes dark blue with E and yellow with B? \_\_\_\_\_
7. What is the pH of a substance if it becomes purple with D and blue with E? \_\_\_\_
8. What is the pH of a substance if it becomes red with A and blue with C? \_\_\_\_\_
9. What is the pH range if indicator A turns orange? \_\_\_\_\_\_\_
10. What is the pH range if indicator C turns yellow? \_\_\_\_\_\_\_
11. Observe the following indicator colour chart and answer the questions below.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| pH Scale | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Indicator 1 | Yellow | | | | | Green | | Blue | | | |
| Indicator 2 | Colourless | | | | | | Pink | | Fuchsia | | |
| Indicator 3 | Red | | Orange | | Yellow | | | | | | |
| Indicator 4 | Red | | | Orange | | | Yellow | | | Green | |

1. The pH of a given solution is unknown. Indicators 1 and 3 turn yellow in this solution. What colour will indicator 4 become in this solution? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. If a solution makes both red and blue litmus paper turn blue, what colour will it be with indicator 3? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What colour would pure water have with indicator 1? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What colour would NaCl make indicator 2 turn? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. The following table gives the colours of two acid-base indicators when they are added to solutions with different pH values.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **pH Scale** | 1 | 3 | | 5 | | 7 | 9 | | 11 | 13 |
| **Indicator A** | Red | | Orange | | Yellow | | | | | |
| **Indicator B** | Yellow | | | | | Green | | Blue | | |

The pH of solution X is 2 and the pH of solution Y is 13. What colour would solution X turn with indicator A, and what colour would solution Y turn with indicator B?

1. Solution X is red with A and solution Y is yellow with B.
2. Solution X is yellow with A and solution Y is blue with B.
3. Solution X is orange with A and solution Y is green with B.
4. Solution X is red with A and solution Y is blue with B.
5. In the lab, you are given two acidic solutions. One has a pH value of 5, and the

other has a pH value of 6.8. Name the best indicator that would allow you to distinguish between the two solutions? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1) Methyl orange

|  |  |  |  |
| --- | --- | --- | --- |
| pH | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | | |
|  | Red | Orange | Yellow |

2) Bromothymol blue

|  |  |  |  |
| --- | --- | --- | --- |
| pH | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | | |
|  | Yellow | Green | Blue |

3) Phenolphthalein

|  |  |  |  |
| --- | --- | --- | --- |
| pH | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | | |
|  | Colourless | Pink | Dark pink |

4) m-Cresol purple

|  |  |  |  |
| --- | --- | --- | --- |
| pH | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 | | |
|  | Yellow | Brown | Violet |

1. The table below indicates the colour of the indicator phenol red in solutions with a pH varying from 1 to 12.



A drop of this indicator is added to some lemon juice.

What colour is the indicator after being added to the lemon juice? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_