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| **%** | **Prove it!** | **Answers** |
| 80% + | 1. State the limitations of the particle theory. 2. Calculate the Rf value of a substance which move 44 mm, when the mobile phase moves 50 mm. 3. Are group 1 metals harder or softer than transition metals? 4. State how the reactivity of group 1 metals changes. 5. How do the properties of group 7 elements change as you go down the group? 6. How does the reactivity of group 7 elements change as you go down the group? 7. Why are group 0 elements unreactive? 8. How do the properties of group 0 elements change as you go down the group? | 1. Limitations of the simple model above include that in the model there are no forces, that all particles are represented as spheres and that the spheres are solid. 2. 44/50 = 0.88 3. Softer. 4. The reactivity of group 1 metals increases as you go down the group. 5. Group 7 elements become more dense and have higher melting points the further down the group you go. 6. The reactivity of group 7 elements decreases as you go down the group. 7. Group 0 elements are unreactive because they have full outer shells of electrons. 8. Group 0 elements become denser and have higher melting and boiling points the further down the group you go. |
| 70% | 1. Compare sand in water and salt in water using the key terms at left. 2. In paper chromatography, what is the stationary phase? 3. Why are metals useful as wires? 4. How are compounds of transition metals different from group 1 metals? 5. What does a chemical reaction always produce? 6. How might I prevent the corrosion of a bike chain? 7. Why is an alloy stronger than a pure metal? 8. State the composition of brass, and steel. | 1. Sand is insoluble in water. Salt is soluble in water. Salt would be the solute, and water the solvent, to make a saltwater solution. 2. The paper. 3. Metals are ductile, and conduct electricity well. 4. Transition metal compounds are coloured. 5. A chemical reaction always produces a new substance. 6. By applying a barrier like grease. 7. Because the atoms of different sizes disrupt the layers of the pure metal atoms, making it harder for them to slide over each other. 8. Brass: copper and zinc. Steel: iron and carbon. |
| 60% | 1. Give the name of the following compound: MnO 2. If a substance melts over a range of temperatures, is it a pure substance or a mixture? 3. How would I obtain pure salt crystals from salt water? 4. Why is it harder to separate elements in a compound than substances in a mixture? 5. What is the radius of an atom? 6. Draw the electronic structure of sodium. 7. How is an isotope different from an atom? 8. What is relative atomic mass? 9. Why is relative atomic mass not an integer? 10. What is the Mr of glucose, C6H12O6? | 1. Manganese oxide 2. A mixture. 3. Though crystallisation. Heat the solution in an evaporating basin gently until crystals just start to form, then leave to evaporate slowly. 4. Elements in a compound must be separated through a chemical change. Substances in a mixture can be separated by physical processes. 5. Around 0.1 nm, or 10-10 m. 6. Image result for sodium electron 7. Isotopes are versions of an element with different numbers of neutrons. 8. The average mass of all the naturally-occurring isotopes of an element. 9. Because relative atomic mass is an average. 10. (12\*6)+12+(16\*6) = 180 |

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| **%** | **Prove it!** | **Answers** |
| 50% | 1. Describe the particles in a solid. 2. State the freezing and melting point of water. 3. Is carbon dioxide an element or a compound? 4. Image result for chromatogram paper Is copper sulphate solution a pure substance or a mixture? 5. Give an example of a formulation. 6. What compounds are in M in the chromatogram at right?  |  |  |  | | --- | --- | --- | | Subatomic particle | Mass | charge | | Proton |  |  | | Neutron |  |  | | Electron |  |  |  1. Complete the table. 2. How many protons, neutrons, and electrons are in an atom of carbon-12? | 1. Fixed in place and vibrating. 2. O° C. 3. Compound 4. Mixture. 5. Fuel. 6. Compounds 1, 4, and 5.  |  |  |  | | --- | --- | --- | | Subatomic particle | Mass | Charge | | Proton | 1 | 1+ | | Neutron | 1 | 0 | | Electron | Almost nothing | 1- |  2. 6 protons, 6 neutrons, 6 electrons. |
| 40% | 1. Draw the particle arrangement in a gas. 2. Give the element symbols for neon, argon, potassium, sulfur, and phosphorus. 3. Draw the plum pudding model of the atom. 4. Why did Mendeleev leave gaps on his periodic table? 5. Why is potassium classified as a metal, even though it is quite soft? 6. State the test for chlorine gas. | 1. Image result for particles in gas 2. Ne, Ar, K, S, P 3. Image result for plum pudding model 4. For undiscovered elements. 5. Because it forms positive ions. 6. Damp litmus paper bleaches white. |