

Complete each of the following problems. For numerical problems, you must show your work in order to possibly earn full credit.

1. Identify the following as either *chemical* or *physical* changes or properties. (2 pts. ea.)

_____ a. Vinegar and baking soda produce a gas when mixed.

_____ b. Water boils at 100°C.

_____ c. Chocolate melts if you leave it in the sun.

_____ d. Cars rust after driving on salted roads.

2. Convert the following metric quantities. (4 pts. ea.)

a. 242 mm = ? km

b. 0.00468 mg = ? μ g

3. You conduct an experiment where 31 grams of phosphorous is reacted with oxygen until all of the phosphorous has been converted to a phosphorous oxide compound. In the experiment, 71 g of the compound is produced. From this information, what mass of oxygen is required to produce 13 grams of this product? (8 pts.)

Bonus: List one example of each of the following. There are many acceptable answers to each part. (2 points each)

a. a homogeneous mixture: _____

b. a heterogeneous mixture: _____