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Unit 5B
Static Electricity
Practice Problems TEACHER

Work each of the following problems. SHOW ALL WORK.

1. How many electrons or protons are found in

   a. +1 C of charge?

   b. -1 C of charge?

   c. -1.6×10^{-6} C of charge?

   _____

   _____

   _____

2. A metal ball has a net charge of 4.5×10^{-7} C

   a. What is the relative number of protons and electrons in the ball?

   b. If just enough charge is removed to make the ball neutral, how much mass does it lose?

   _____

   _____

   _____

   _____

3. An uncharged spherical conductor hangs by an insulating thread. You bring a negatively charged rod near from the left side. The net charge on the hanging conductor's left side is (choose one):

   a. Positive

   b. Negative

   c. Neutral

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4. Two objects with negative charges of 6.2 nC each are separated by 0.3 m. What is the size and direction of the force between the two charges?

   _____

   _____

5. An object with a negative charge of 1.2 mC exerts an attractive force of 13.6 N on a second charged object 0.072 m away. What is the charge and polarity (positive or negative) of the 2nd object?

6. How many excess electrons are on a ball with a charge of -5.31×10^{-16} C?

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Work each of the following problems. SHOW ALL WORK.

7. A metal ball with -8 nC charge contacts a second metal ball and loses half its excess electrons. What force does the second metal ball exert on a proton 6m away?

8. Rubbing a plastic bag and a balloon with a cloth gives both objects a net negative charge. The balloon's charge is -1×10^{-10} C and the bag's charge is -1×10^{-5} C, and each object has a mass of 0.02 grams. Wearing insulating gloves, you hold the bag above the balloon and let go. How far above the center of the balloon will the bag 'levitate'?