**Note: All answer must be in engineering notation rounded off to the tenth**

1. **Find the force of attraction in Newton between the charges Q1 = 160 mC and Q2 = 2.5 μC if the distance between them is 3 inches. Hint: 1 inche = 25.4 mm (17 points)**

1 in. = 25.4mm, 3 in.=76.2mm

Thus the answer in prefix symbol will be 620.0kN.

1. **Two equal charged bodies Q1 and Q2, when separated by a distance of 2 m, experience a force of repulsion equal to 1.8 N. What is the charge of Q1 and Q2? (19 points)**

Because Q1 and Q2 are equal, so

Thus

In prefix symbol is 28.3µC

µC

1. **Determine the distance between two charges of 16 μC and 25 μC if the force between the two charges is 7.8 \*106 N (17 points)**

Thus

In prefix symbol is 679.4µm

So the distance is 679.4µm.

1. **If the potential difference between two points is 26 V, how much energy is expected to bring 12 mC from one point to the other? (14 points)**

In prefix symbol is 312.0mJ

The energy expected is 312.0mJ

1. **What is the energy expended by a 1.5 V rechargeable battery that can operate for 6 hours with a current drawn of 25 mA? (18 points)**

6 hr=21.6\*s=21.6ks

Q=540.0C and

So the energy expended is 810.0J

1. **If the current in a conductor is constant at 6 mA, how much time is required for 24** μ**C to pass through the conductor? (15 points)**

In prefix symbol is 4.0ms. So it’s 4.0ms.