**Coulomb’s law practice problems**

15. Determine the electrical force of repulsion of two charges with the same sign, one having a charge of 10-6 C and the other a charge of 10-9 C, if they are in a vacuum and separated a distance of 3 cm

16. Determine the repulsive force of two charges with the same sign and the same quantity of charge of 3·10-9 C if placed in a vacuum and separated a distance of 9 cm.

17. There are two balloons, both with a charge of 0.1 μC, and separated a distance of 10 cm. Determine the force of attraction between the balloons if the distance that separates them increases by a factor of 3.

18. There is a force of repulsion of 10 N between an electric charge placed in a vacuum and separated 20 cm from another charge of equal sign and a charge of -20 μC. Determine the value of the first electric charge.

19. Determine the electrical force ‘felt’ by two charges of the same sign, one having a charge of 4 μC and the other with a charge of 6 μC and separated a distance of 80 cm. Do the charges attract or repell each other? Determine now the electrical force between the charges if the distance between them is one fourth of the original distance.

20. A small ball with a charge of 2 μC touches another ball, of the same size and characteristics, but neutral. After the balls come in contact they separate a distance of 30 cm. What is the force of repulsion between the two balls?

21. Determine the electrical force of attraction between two charges, with the same quantity of charge, one of +3 μC and the other of -3 μC if they are separated a distance of half cm.

22. Determine the distance that separates two charges of the sign and the same quantity of charge of 1 mC if the electrical force of repulsion between them is of 0.23 N.

23. Two charges of the same sign and the same quantity are separated a distance of 0.2 dm. Determine the quantity of the charge if the electric force of repulsion between them is of 1.2·10-3 N?

24. A charge of +1 nC is separated a distance of 1mm from another unknown charge. Determine the quantity and sign of the unknown charge if the electric force of attraction between the two is of 10-6 N.