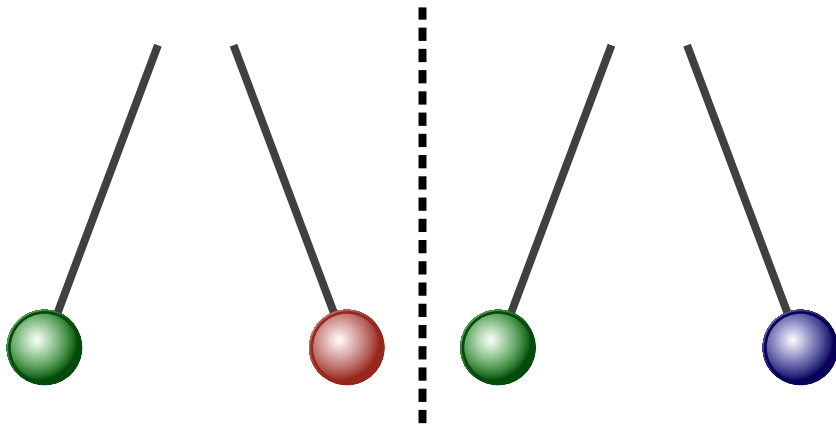


# Question 1

Two pairs of balls are suspended next to each other. Each pair is observed to repel and the green ball is the same in both cases.

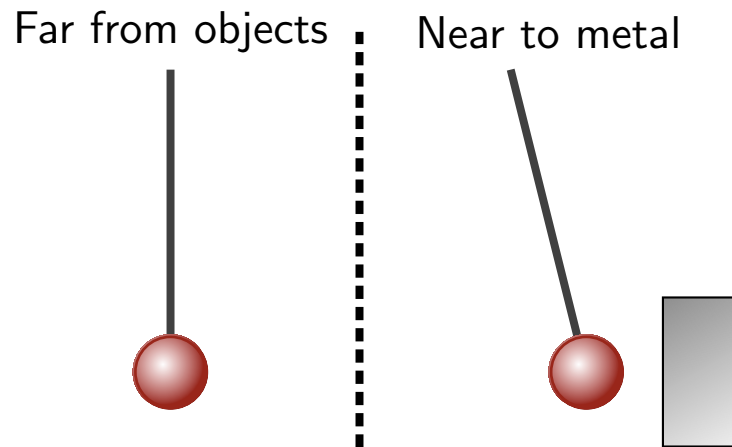


The red and blue balls are placed near to each other. Which of the following will be observed?

1. The red and blue repel each other.
2. The red and blue attract each other.
3. The red does not exert a force on the blue but the blue does exert a force on the red.
4. The blue does not exert a force on the red but the red does exert a force on the blue.
5. Neither ball exerts a force on the other.

## Question 2

A metal ball has charge  $+8.0\text{ C}$  and when far from other objects it hangs vertically. A piece of metal is brought close to the ball and attracts the ball without touching.



Which of the following is true while the ball is attracted?

1. The ball's charge is  $+8.0\text{ C}$ .
2. The ball's charge is more than  $+8.0\text{ C}$ .
3. The ball's charge is less than  $+8.0\text{ C}$ .

## Question 3

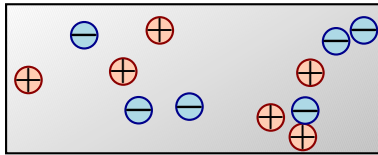
A small metal sphere is initially neutral. It is placed into contact with a small negatively charged metal cube and then released.

Which of the following is true after the two objects have been in contact?

1. They attract each other and stay in contact.
2. They repel each other and move apart.
3. They neither attract nor repel but still stay in contact.

## Question 4

A block of metal contains positive and negative charges. They are initially randomly distributed.

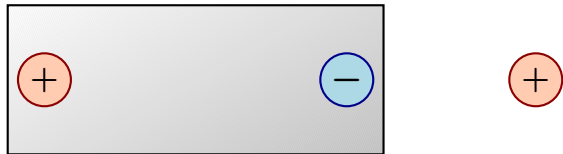


Later a positively charged ball is held to the right of the block. It does not touch. While the ball is held in position which of the following is true?

1. The charge in the block is still randomly arranged.
2. The charge in the block separates with all positive charge going to one side and all negative to the other.
3. The charge in the block partially separates with some positive charge going to one side and some negative to the other.

## Question 5

A block of metal contains charges as illustrated. A positively charged ball is held fixed to the right of the block.

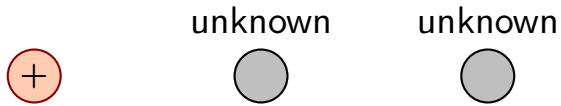


If the ball is released, which way will it eventually move?

1. The ball will stay at rest.
2. The ball will move right.
3. The ball will move left.

## Question 6

Three charged particles are located as illustrated. The sizes of the charges are all the same.



It is observed that there is no force on the middle charge. Which (choose one) of the following is true?

1. The rightmost charge is negative and the middle charge is positive.
2. The rightmost charge is positive and the middle charge is positive.
3. The rightmost charge is negative and the middle charge is negative.