



## DEPARTMENT OF MATHEMATICS

### PUZZLES IV

#### (Who killed the man?, Bird and the Train, Move the arrows)

**Who killed the man?** : Rohan was found dead in the company. The police arrived at the scene and narrowed down four suspects. The name of the four suspects are James, Diya, Alice and Lopa. While dying, Rohan had written some letters with his blood. The police found the word written on the ground near Rohan. The word was kbnft. The police was able to break the code and found the murderer. How did the police found the murderer?

**Solution:**

The police noticed that

k-1 character = J

b-1 character = A

n-1 character = M

f-1 character = E

t-1 character = S

So, Police was able to found the murderer and arrested James.

**Bird and the Train** : The distance between Station Atena and station Barcena is 84 miles. A train starts from Atena towards Barcena. A bird start at the same time from Barcena straight towards the moving train. On reaching the train, it instantaneously turns back and returns to Barcena. The bird makes these journeys from Barcena to the train and back to Barcena continuously till the train reaches Barcena. The bird finally returns to Barcena and rests. Calculate the total distance in miles the bird travels. The bird flies at 80 miles/hour and the speed of the train is 60 miles per hour.

**Solution:**

The train (at a speed of 60 miles per hour) travels 60 miles in 60 minutes.

Therefore, the train travels from Atena to Barcena (84 miles) in 84 minutes.

Importantly, the bird makes the journeys continuously back and forth for this same amount of time (84 minutes).

Thus, the total distance travelled by the bird = 80 miles per hour \* 84 minutes

$$80 * 84 / 60 \text{ miles} = 112 \text{ miles.}$$