

105 goats, 140 donkeys and 175 cows have to be taken across a river. There is only one boat which will have to make many trips in order to do so. The lazy boatman has his own conditions for transporting them. He insists that he will take the same number of animals in every trip and they have to be of the same kind. He will naturally like to take the largest possible number each time. Can you tell how many animals went in each trip?

Solution:

The largest possible number is the HCF of 105, 140 and 175.

By Euclid's division algorithm

$$140 = 105 \times 1 + 35$$

$$105 = 35 \times 3 + 0$$

$$\text{HCF of 140 and 105} = 35$$

By Euclid's division algorithm

$$175 = 35 \times 5 + 0$$

$$\text{HCF of 35 and 175} = 35$$

\therefore Number of animals that went in each trip = 35