

## **IMAM ALI (AS)'S MATHEMATICAL BRILLIANCE:**

Imam Ali (AS) was endowed with a quick, sharp, incisive, mathematical mind. Here are a few interesting stories of Imam Ali (AS)'s mathematical brilliance.

### **DIVIDING INHERITANCE - What is a wife's share?**

Imam Ali (AS) was once interrupted while he was delivering a sermon from the pulpit by someone who asked him how to distribute the inheritance of someone who had died leaving a wife, his parents and two daughters. The Imam instantly answered:

"The wife's share becomes one ninth."

How?

This answer is in fact the result of a long analysis with a number of steps. Ordinarily, we have to decide on the original share of each of these heirs, in the following way:

The wife takes one eighth, in view of the presence of an inheriting child. [Holy Quran 4:12]

The deceased's father and mother take one sixth each. [Holy Quran 4:11]

The two daughters take two thirds of the inheritance. [Holy Quran 4:11]

So the total will be:

$$1/8 + 1/6 + 1/6 + 2/3 = 3/24 + 4/24 + 4/24 + 16/24 = 27/24$$

This means the share becomes less than 1/8 in view of the increase of the total of the shares which are so fixed and prescribed. So the one eighth, the original share due to the wife out of twenty-four total shares, has become three shares out of a total of twenty-seven, which is one ninth.

Imam Ali's mind went through this complex mathematical process in a second!

### **WHOLE NUMBER AND NOT A FRACTION**

One Day a Jewish person came to Imam Ali (AS), thinking that since Imam Ali thinks he is too smart, I'll ask him such a tough question that he won't be able to answer it and I'll have the chance to embarrass him in front of all the Arabs.

He asked "Imam Ali, tell me a number, that if we divide it by any number from 1-10 the answer will always come in the form of a whole number and not as a fraction."

Imam Ali (AS) looked back at him and said, "Take the number of days in a year and multiply it with the number of days in a week and you will have your answer."

The Jewish person got astonished but as he was a polytheist (Mushrik), he still didn't believe Imam Ali (AS). He calculated the answer Imam Ali (AS) gave him.

To his amazement he came across the following results:

The number of Days in a Year = 360 (in Arab)

The Number of Days in a Week = 7

The product of the two numbers = 2520

Now...

$$2520 \div 1 = 2520$$

$$2520 \div 2 = 1260$$

$$2520 \div 3 = 840$$

$$2520 \div 4 = 630$$

$$2520 \div 5 = 504$$

$$2520 \div 6 = 420$$

$$2520 \div 7 = 360$$

$2520 \div 8 = 315$   
 $2520 \div 9 = 280$   
 $2520 \div 10 = 252$

### **DIVIDING 17 CAMELS**

A person was about to die, and before dying he wrote his Will which went as follows:

"I have 17 Camels, and I have three sons. Divide my Camels in such a way that my eldest son gets half of them, the second one gets  $\frac{1}{3}$ rd of the total and my youngest son gets  $\frac{1}{9}$ th of the total number of Camels."

After his death when the relatives read his will they got extremely perplexed and said to each other that how can we divide 17 camels like this.

So after a long hard thought they decided that there was only one man in Arabia who could help them: "Imam Ali (AS)."

So they all came to the door of Imam Ali (AS) and put forward their problem.

Imam Ali (AS) said, "Ok, I will divide the camels as per the man's will."

Imam Ali (AS) said, "I will lend one of my camels to the total which makes it 18 ( $17+1=18$ ), now lets divide as per his will."

The eldest son gets  $\frac{1}{2}$  of 18 = 9

The second one gets  $\frac{1}{3}$  of 18 = 6

The youngest gets  $\frac{1}{9}$  of 18 = 2

Now the total number of camels = 17 ( $9+6+2=17$ )

Then Imam Ali (AS) said, "Now I will take my Camel back."

### **THE FIVE LOAVES OF BREAD**

Zarr Bin Hobeish relates this story: Two travelers sat together on the way to their destination to have a meal. One had five loaves of bread. The other had three. A third traveler was passing by and at the request of the two joined in the meal.

The travelers cut each of the loaf of bread in three equal parts. Each of the travelers ate eight broken pieces of the loaf.

At the time of leaving the third traveler took out eight dirhams and gave to the first two men who had offered him the meal, and went away. On receiving the money the two travelers started quarrelling as to who should have how much of the money.

The five-loaf-man demanded five dirhams. The three-loaf-man insisted on dividing the money in two equal parts.

The dispute was brought to Imam Ali (AS) (the Caliph of the time in Arabia) to be decided.

Imam Ali (AS) requested the three-loaf-man to accept three dirhams, because five-loaf-man has been more than fair to you. The three-loaf-man refused and said that he would take only four dirhams. At this Imam Ali (AS) replied, "You can have only one dirham." You had eight loaves between yourselves. Each loaf was broken in three parts. Therefore, you had 24 equal parts. Your three loaves made nine parts out of which you have eaten eight portions, leaving just one to the third traveler. Your friend had five loaves which divided into three made fifteen pieces. He ate eight pieces and gave seven pieces to the guest. As such the guest shared one part from your loaves and seven from those of your friend. So you should get one dirham and your friend should receive seven dirhams.