Interviewer (Sargun): Hi Sonal, I am working on a project called Eternity: Numbers which focuses on different irrational numbers. I am specifically working on the number “π”. So, can I ask you a couple of questions about it?

Interviewee (Sonal): Of course.

Sargun: Sonal what do you do?

Sonal: I am a PhD holder from Stanford University, California and I am currently working as a Senior Scientist in Siemens, Germany.

Sargun: Impressive! So, which is your favourite irrational number?

Sonal: Well I think you have found the right person for your interview because my favourite irrational number is “π”.

Sargun: That’s great, how often do you use π?

Sonal: π is a very commonly occurring irrational number. This is also one of the reasons that it is almost everyone’s favourite. It occurs often in formulae involving circles and it also sneaks into some fundamental physical constants. So yeah, I use it whenever I work on these.

Sargun: Okay. Can you tell me a few interesting facts about π?

Sonal: We have pi day that is celebration on March 14 in San Francisco. It is celebrated on this day as March is the third month of the year, so it is 3/14. Another interesting fact is that digits of pi can never be fully known. In earlier times, people used to find out the value of pi to upto 1000 places. Imagine doing this by hand with no calculators. This has become a thing of the past, since the monotony that was done by hand is now done by computer.

Sargun: Alright. Why is π so important?

Sonal: π is important because it is related to cycles. When we apply mathematics to the real world, it makes π absolutely necessary. There is a major formula in mathematics called Fourier Series whose building blocks are π. Another major application of π is in designing of buildings to withstand earthquakes. We can say that cycles are temporal cousins of circles, so π will occur every time we are working with circles.

Sargun: Why is pi defined as a ratio of two rational numbers if it is an irrational number?

Sonal: This is an interesting question! Π is the ratio of diameter and circumference of the circle and these two will never be rational numbers. When we measure them, we get their approximate values and we can take their ratio to find the approximation of π.

Sargun: But how is that possible? If I draw a circle, I can measure its diameter. How can this measurement be irrational?

Sonal: Good observation! But one of them, either the circumference or the diameter is irrational. The diameter of the circle that you measured, no matter how accurately you measured it, it will never be accurate enough. It will be an irrational value. You can never know the diameter exactly just by measuring it.

Sargun: Oh, I see! I have to design a calculator for calculating the value of pi. Can you suggest me the parameters that I can use for it?

Sonal: That sounds fun. You should use buttons “Circumference” and “Diameter” in it and then value of pi can be calculated by dividing Circumference by Diameter. This is the simplest way of calculating the value of pi.