1. Why division by 0 is not possible

We can’t divide any number by zero because there’s no number that, when multiplied by zero, gives the original number. In real math, that means it’s **undefined**. In programming, it usually throws an **error**.

Reverse of division is multiplication.

Eg: 6 / 0 = x

X \* 0 = 6 Here it not valid as there is no number that can be used to multiply by 0 to get 6.   
[Why can't you divide by zero?](https://www.youtube.com/watch?v=hv2dSnfTrxU&t=156s)

1. Why there is different frequencies used in difference countries?

Power system frequency is basically how quickly the AC voltage or current’s phase angle changes, and it’s measured in hertz (Hz). One hertz means one cycle per second. The frequency depends on how fast the generators spin—faster rotation gives a higher frequency. It also plays a big role in how electrical equipment is designed and how well it works.

Back in the late 19th and early 20th centuries, different countries experimented with all kinds of frequencies for historical, economic, and practical reasons—often without strong technical justification. You’d see everything from 16.67 Hz to over 130 Hz, depending on what was needed at the time, whether it was for lighting, running motors, or improving transmission and transformer performance.

As power systems evolved, countries started standardizing. Over time, two main camps formed: Europe and much of Asia settled on 50 Hz, while North America and parts of Latin America went with 60 Hz. Japan ended up with a mix of both.

Technically, each frequency has pros and cons. 50 Hz tends to have slightly lower transmission losses over long distances but requires larger, heavier equipment. 60 Hz allows for lighter motors and transformers but loses a bit more energy in transmission. In the end, neither is strictly “better”—it’s just a trade-off that stuck based on history.

1. Python scrip to convert complex numbers from cartesian form to polar and vice versa  
     
   [MSE802/Week2/ComplexNumberConvertor.py at main · Shankp/MSE802](https://github.com/Shankp/MSE802/blob/main/Week2/ComplexNumberConvertor.py)