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THE EXACT π SOLVES THE MOON ILLUSION MYSTERY

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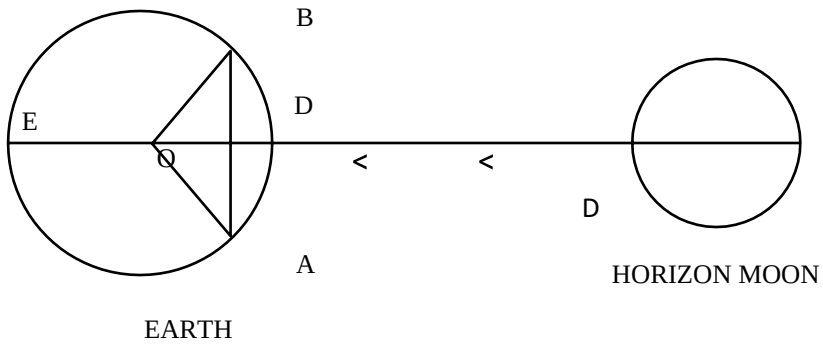
The moon illusion is an age old mystery. What is moon illusion?

The moon seems larger in angular size when it is near the horizon than when it is high in the sky.

When the moon is closest the Earth its angular size is about eleven percent larger than when it is most distant.

Mathematical Analysis: Curvature Effect



Circle: Diameter=1=ED

Radius: $\frac{1}{2} = OB = OA = OD$

Triangle: BOA

Hypotenuse=AB=OA× $\sqrt{2}$=chord

$=\frac{1}{2} \times \sqrt{2}=\frac{\sqrt{2}}{2}$

Arc BDA=$\frac{circumference}{4}$

When diameter is equal to 1, the circumference is equal to π .

So, BDA arc=$\frac{\pi}{4}$

Exact π called Rho is equal to $\frac{14-\sqrt{2}}{4}$

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Then $\frac{\pi}{4} = \frac{14-\sqrt{2}}{4} \times \frac{1}{4} = \frac{14-\sqrt{2}}{16}$

The arc is a curvature.

In the case of SPHERE, light rays falling on Earth surface is influenced by the curvature of the sphere. It is called **Curvature Effect**.

How to know the curvature effect? It is every simple. Here is the formula

: $\frac{Arc\ length}{Chord\ length}$

$$\frac{Arc\ length}{Chord\ length} = \frac{\left(\frac{14-\sqrt{2}}{16}\right)}{\left(\frac{\sqrt{2}}{2}\right)} = \frac{2(14-\sqrt{2})}{16\sqrt{2}} = \frac{14-\sqrt{2}}{8\sqrt{2}} = 1.11243686709$$

When the diameter is equal to 1 the Curvature Effect is equal to 1.11243686709

What is the percentage effect?

1 ———————— 1.11243686709

Difference=1.11243686709-1=0.11243686709

Percentage 1 ———————— 0.11243686709

100 ———————— ?

$\frac{100}{1} \times 0.11243686709 = 11.243686709$

So, 11.243686709 %

We know, when the Moon is closest the Earth, its angular size is about 11% larger.

This mathematical analysis agrees with the reality of 11% angular difference.