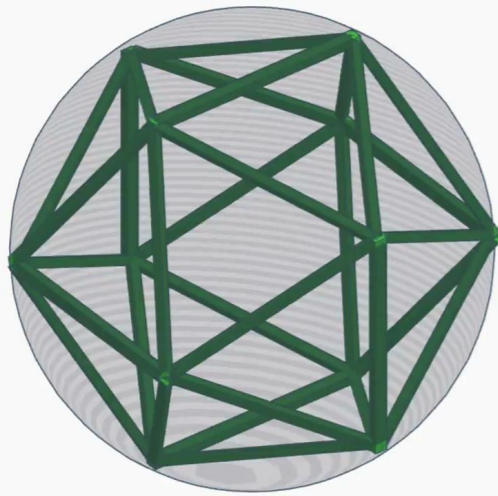
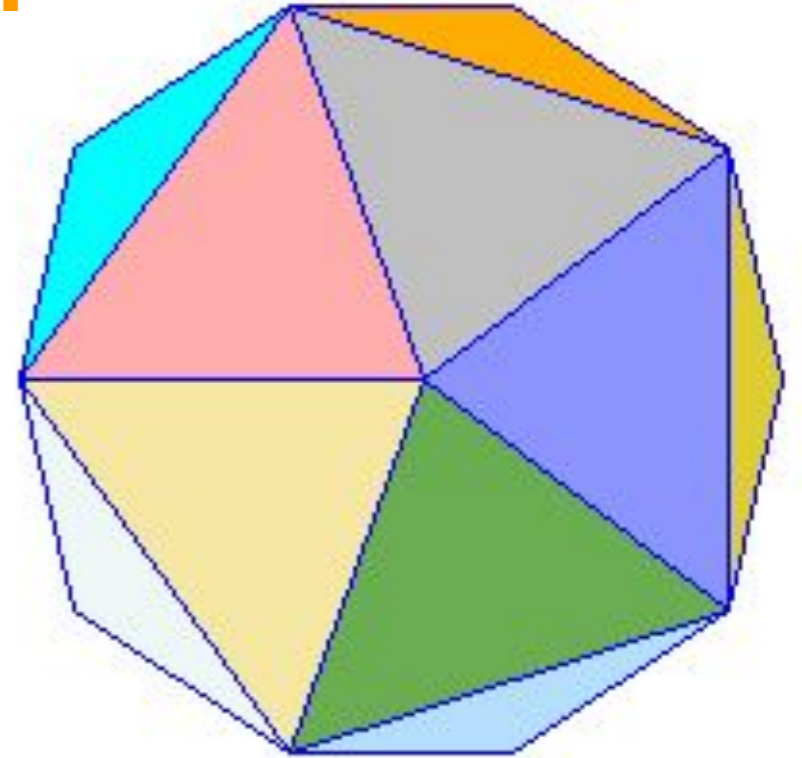
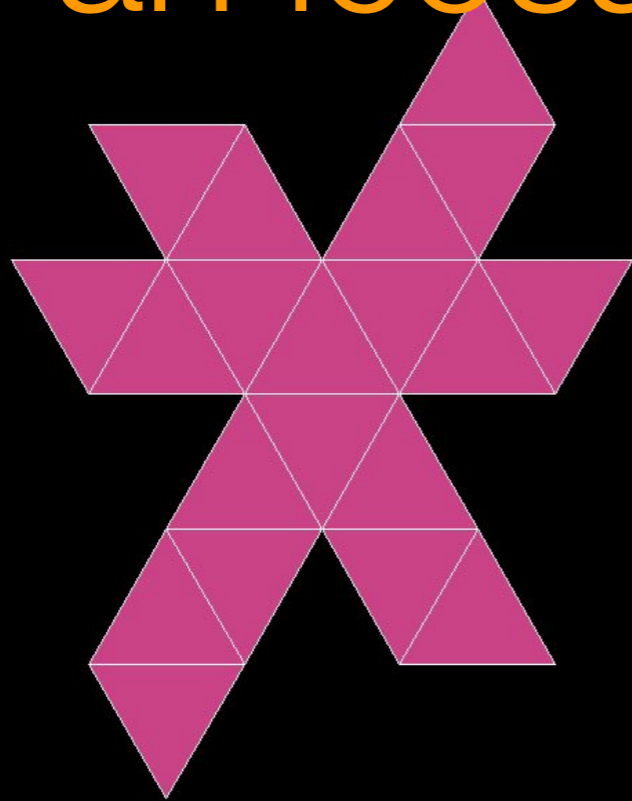




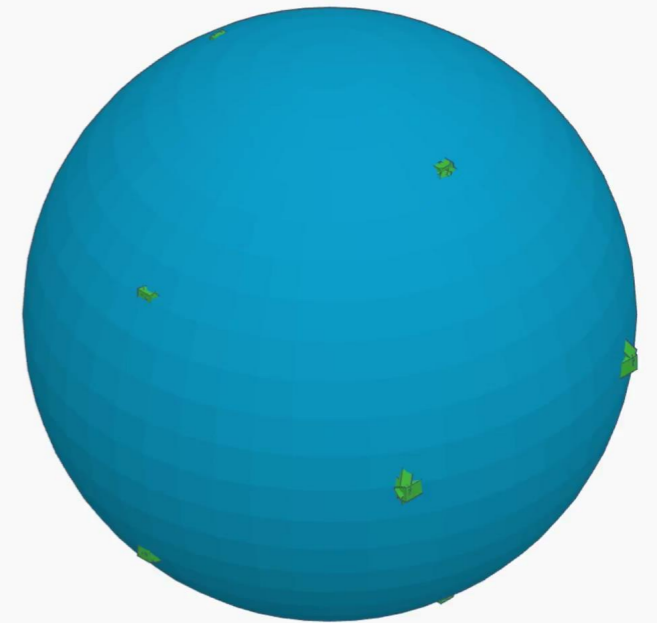
Dome

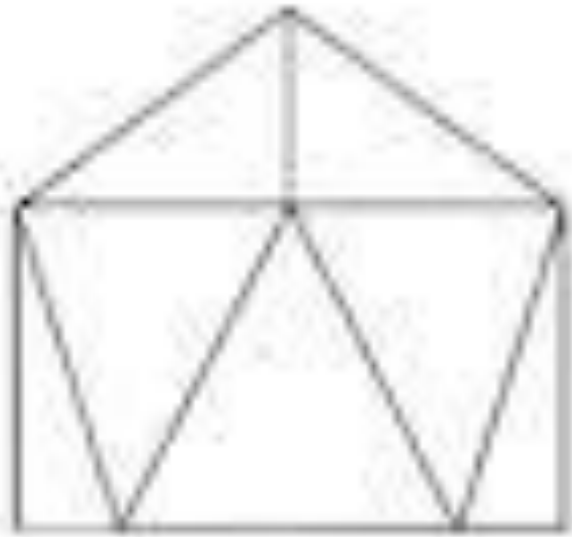
what is an icosahedron?



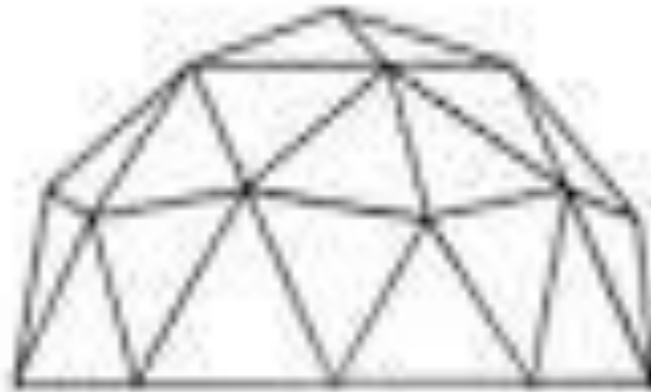
**AN ICOSAHEDRON IS A
REGULAR SOLID WITH 20
FACES (EQUILATERAL
TRIANGLES)**

**EACH VERTEX IS LOCATED
ON THE SURFACE OF A
SPHERE**





V1



V2



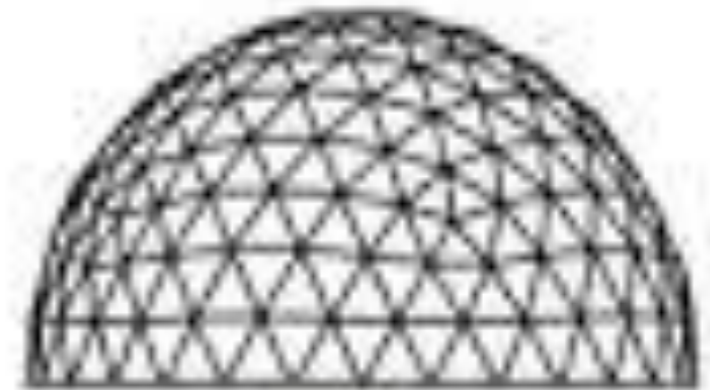
V3



V4



V5



V6

It depends of how many vertex we have,
the domo will seem more or less as as a sphere

And can I build a
DOME with this
figure
(an icosaedrom)?



YES, but it doesn't look like
a sphere at all

A DOME IS TO GET MORE POINTS OF THE SPHERE FROM AN ICOSAHEDRON

HOW?

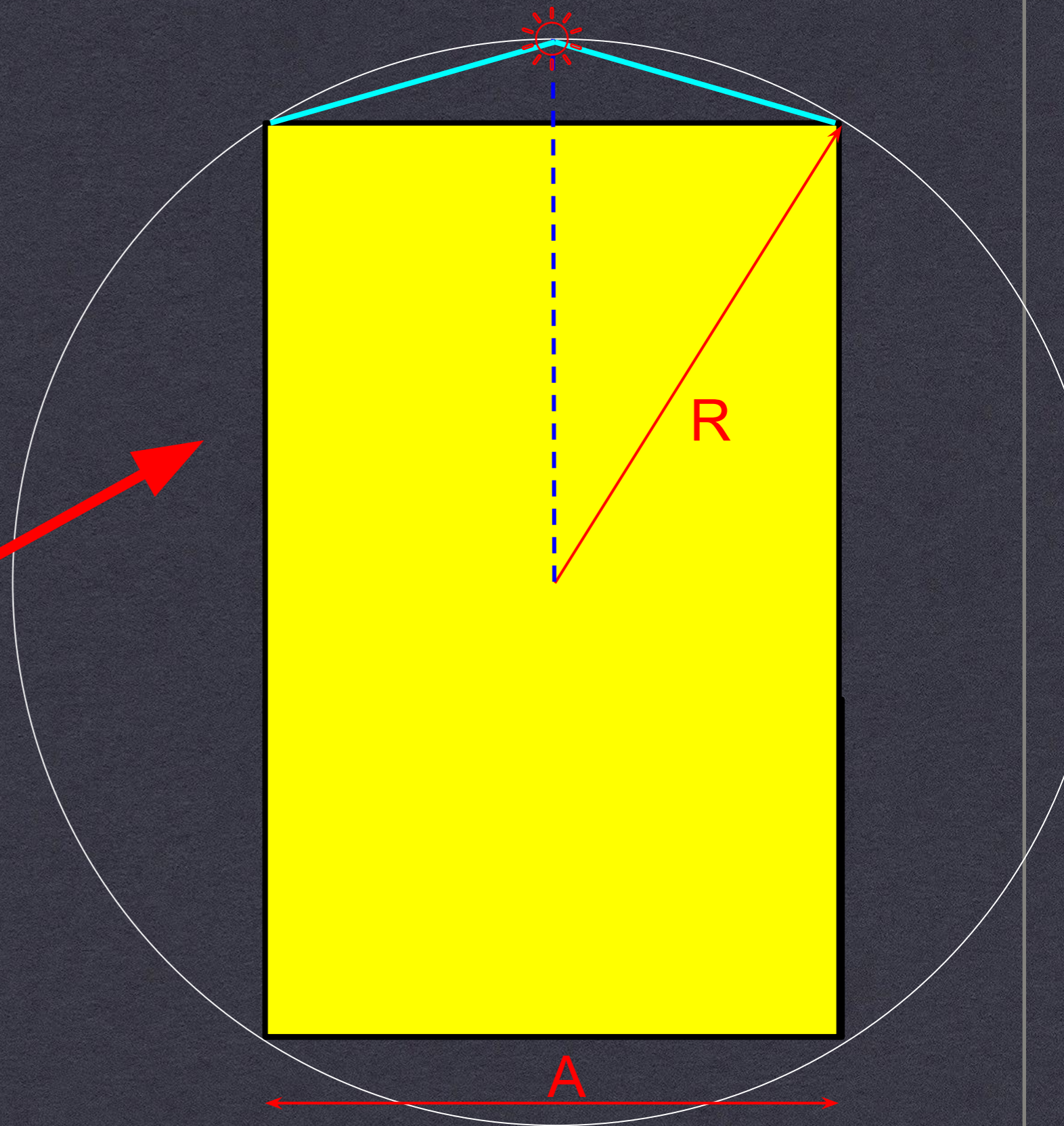
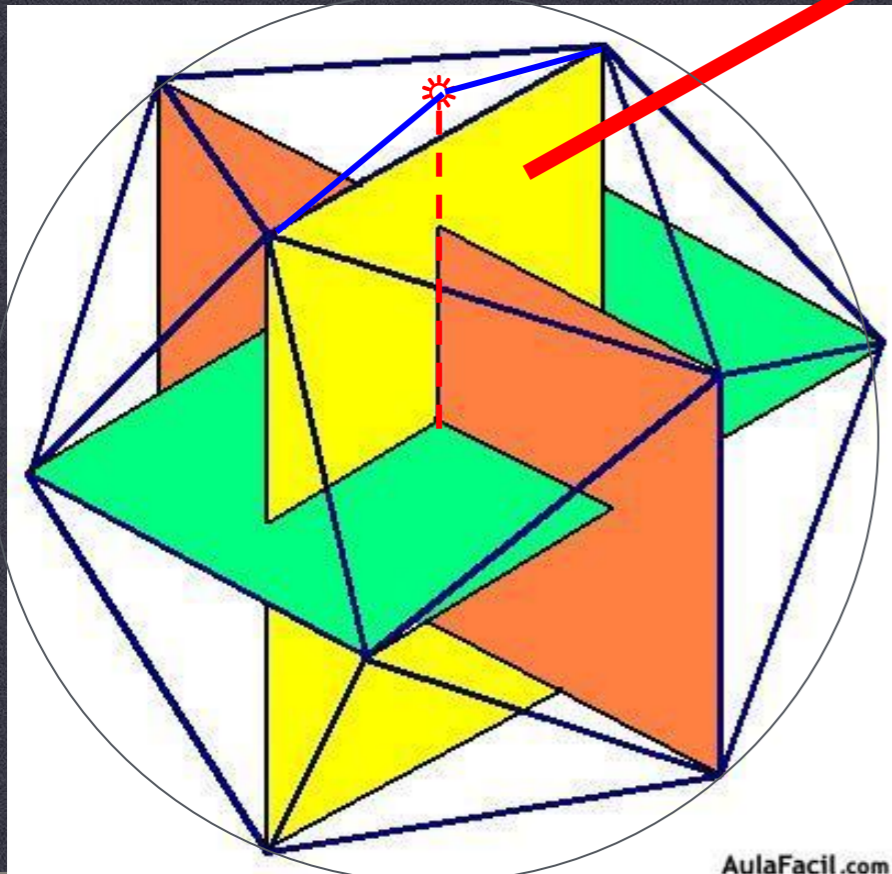
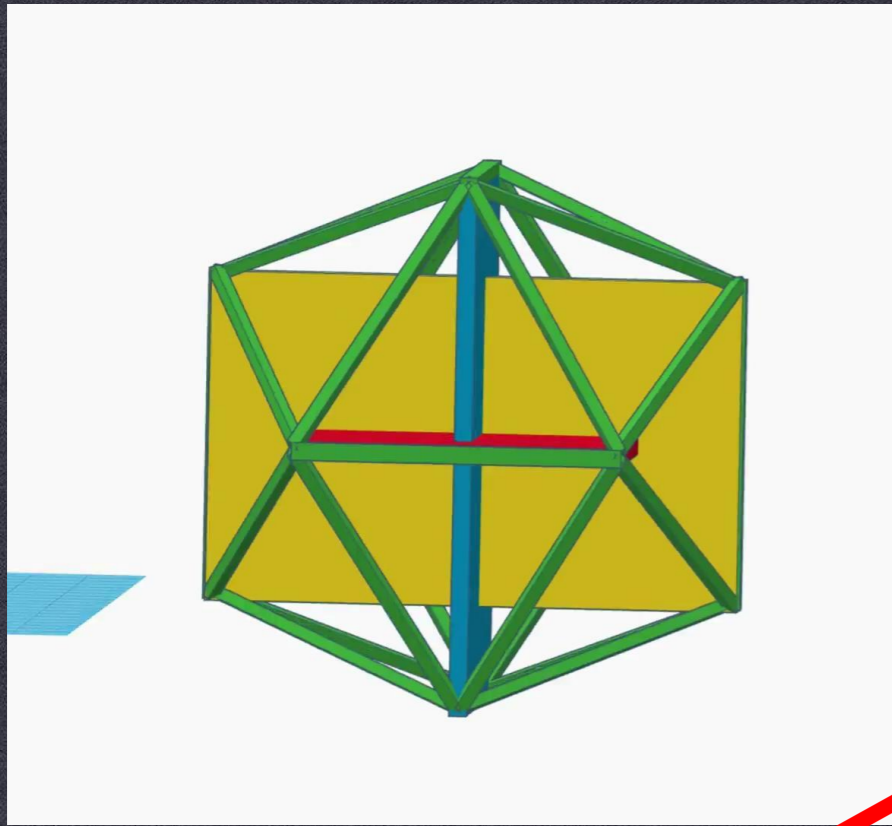
 VERTEXES OF
THE SPHERE

 CENTERS OF THE
SIDES

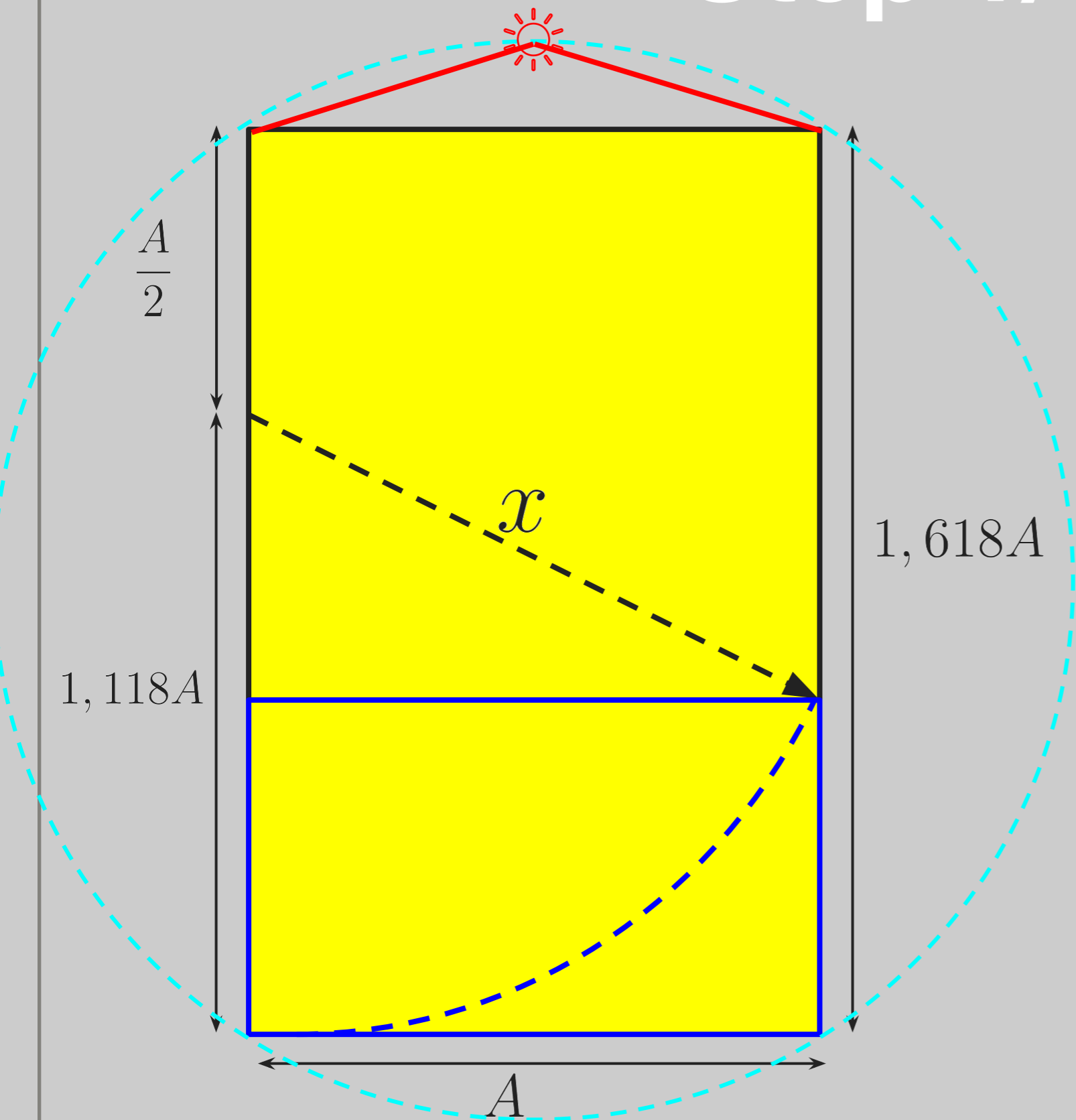
 NEW VERTEXES!



how is it calculated?



Step 1/3



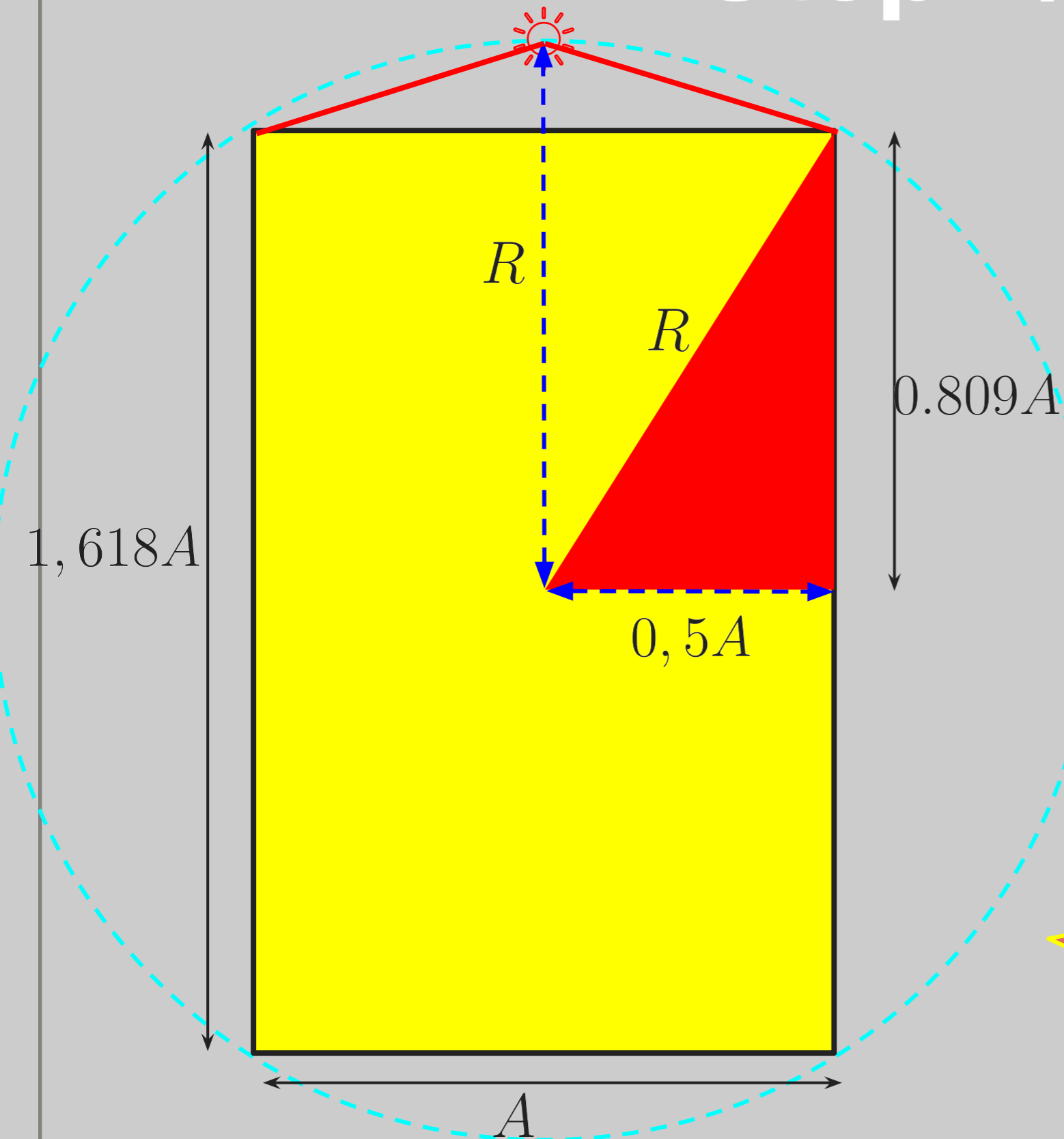
$$x = \sqrt{A^2 + \left(\frac{A}{2}\right)^2}$$

$$x = \sqrt{A^2 + \frac{A^2}{4}}$$

$$x = \sqrt{\frac{5A^2}{4}}$$

$$x = \frac{A\sqrt{5}}{2} = 1,118A$$

Step 2/3



$$R = \sqrt{(0,5A)^2 + (0,809A)^2}$$

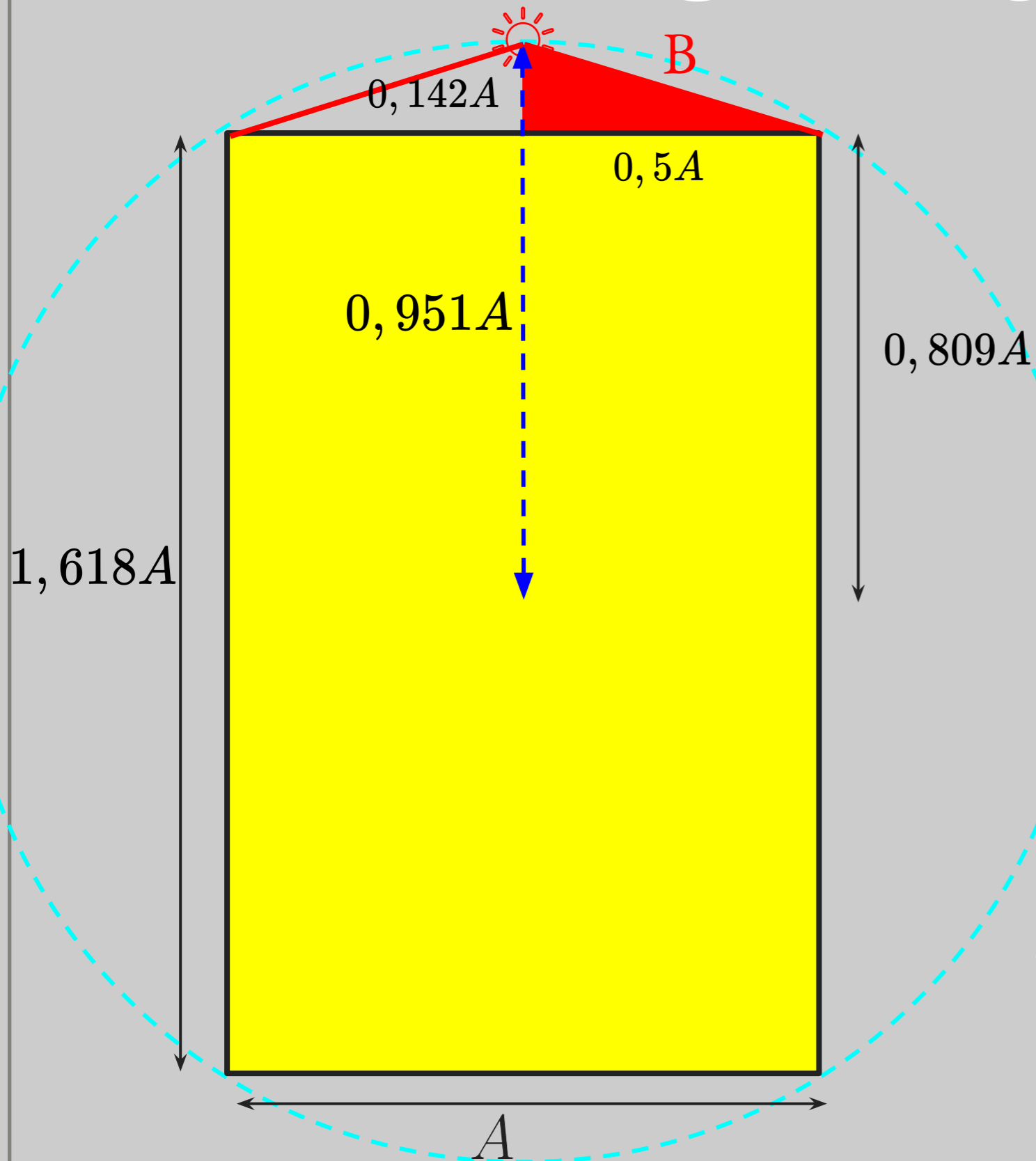
$$R = \sqrt{0,25A^2 + 0,654A^2}$$

$$R = \sqrt{0,904A^2}$$

$$R = 0,951A \quad A = \frac{R}{0,951}$$

$$A = 1,052R$$

STEP 3/3



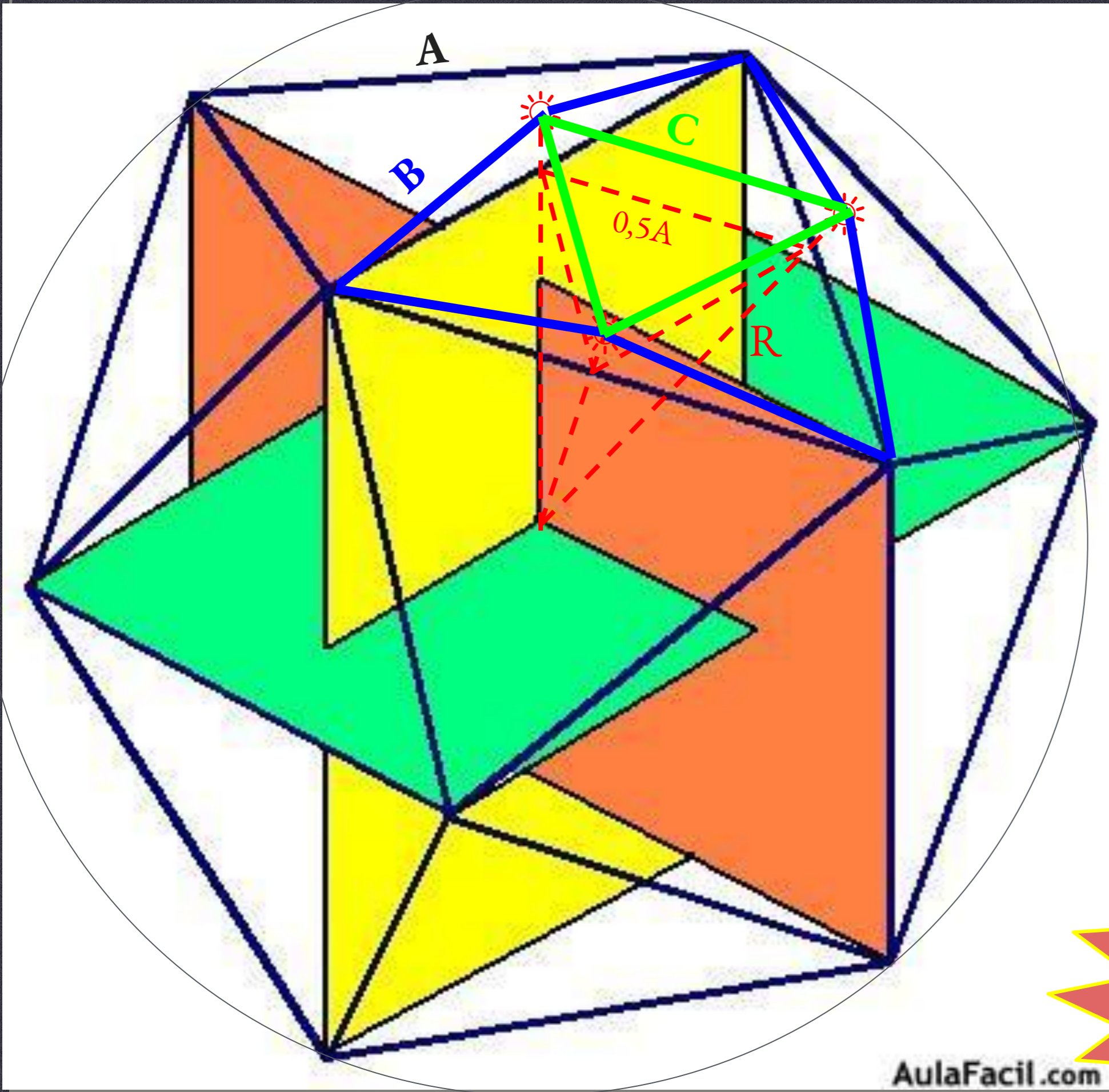
$$B = \sqrt{(0,5A)^2 + (0,142A)^2}$$

$$B = \sqrt{0,25A^2 + 0,020A^2}$$

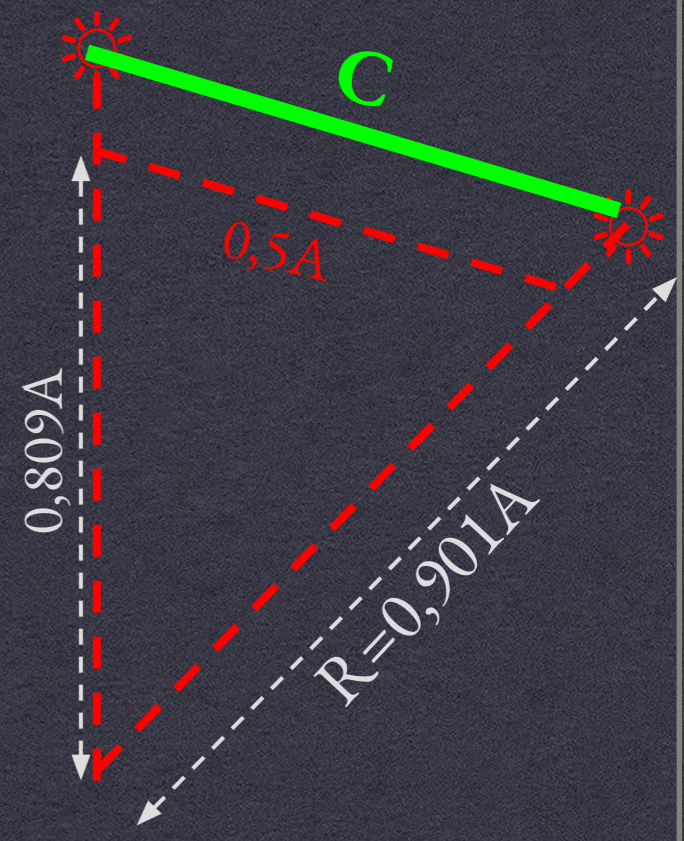
$$B = \sqrt{0,27A^2}$$

$$B = 0,519A$$

$B=0,519A$



LAST STEP

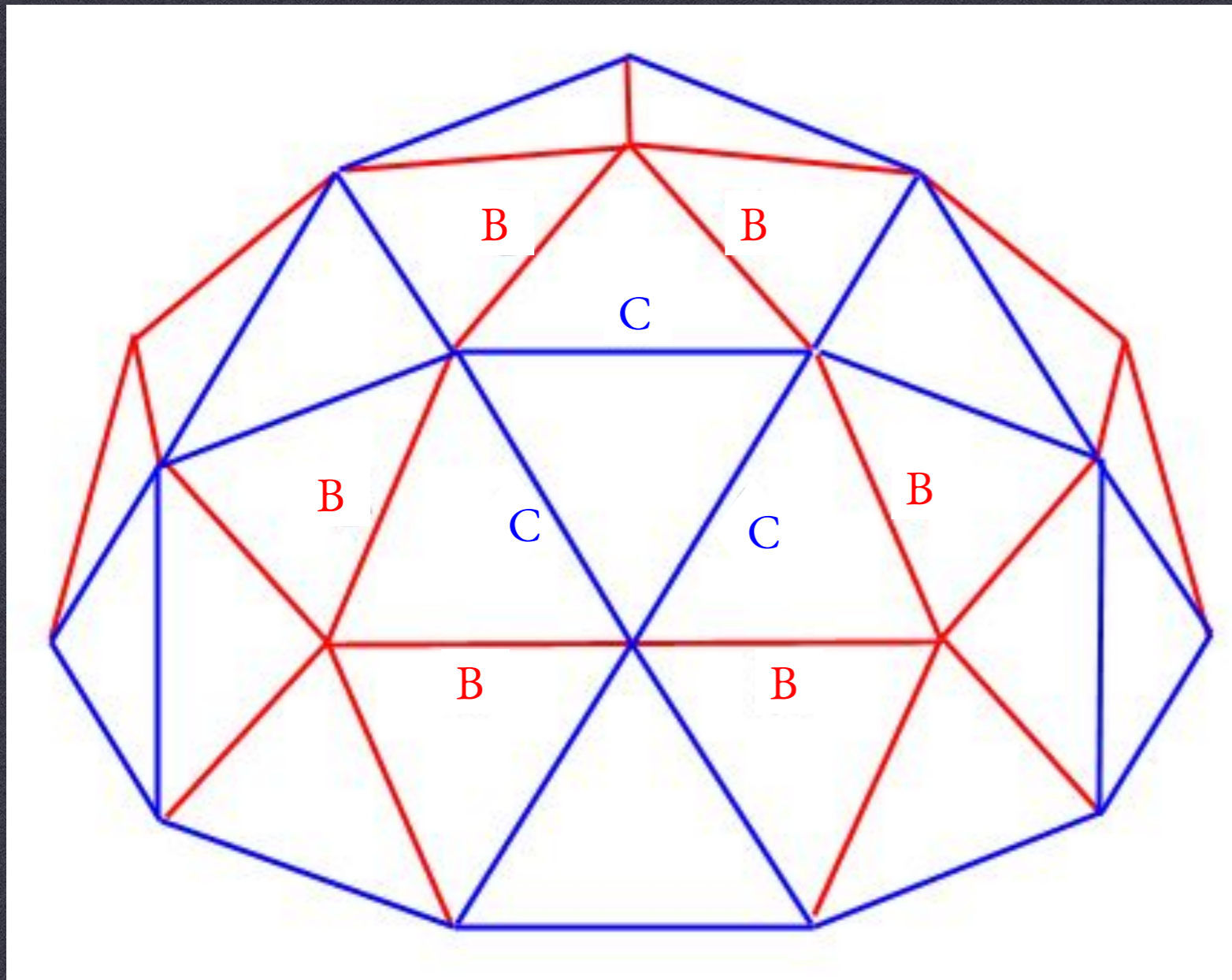


$$\frac{C}{R} = \frac{0,5A}{0,809A}$$

$$C = \frac{0,901A \times 0,5A}{0,809A}$$

C=0,556A

ASSEMBLY DIAGRAM



$$A=1,052R$$

$$B=0,519A$$

$$C=0,556A$$

Example:

If we build a Dome of 10m of radius:

The icosahedron will have the side $A=10 \times 1,052=10,52\text{m}$

The type B bar will have: $B=0,519 \times 10,52=5,46\text{m}$

The type C bar will have : $C=0,556 \times 10,52=5,85\text{m}$