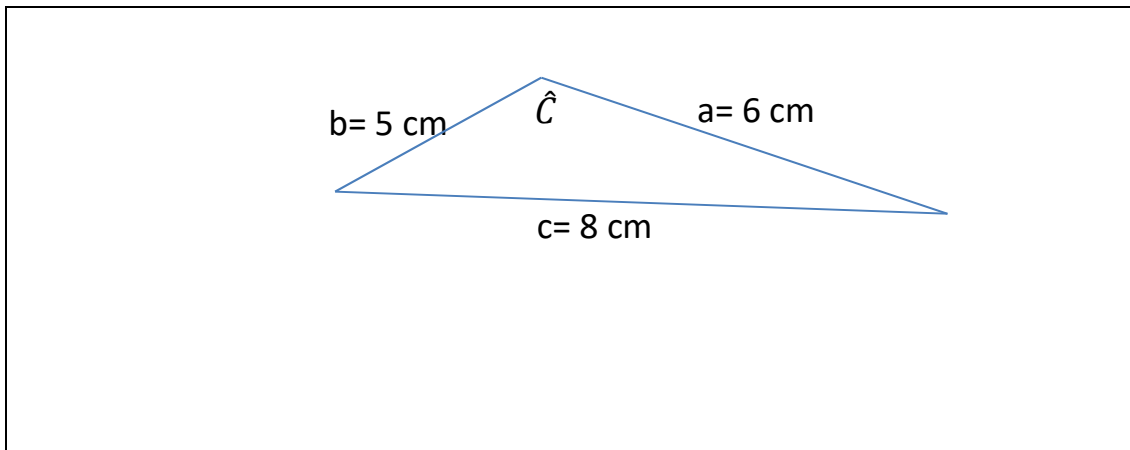


## PROBLEMAS DE TRIGONOMETRÍA

### Problema 207:

Los lados de un triángulo miden: 5 cm, 6 cm y 8 cm. Calcular el seno y el coseno del ángulo mayor.

### Solución Problema 207:



Al lado mayor le corresponde el ángulo mayor.

Aplicando la fórmula de Briggs:

$$\operatorname{tg} \frac{C}{2} = \sqrt{\frac{(p-a) \cdot (p-b)}{p \cdot (p-c)}}$$

Siendo  $p$  el semiperímetro.

$$p = \frac{P}{2} = \frac{5 + 6 + 8}{2} = \frac{19}{2}$$

$$\operatorname{tg} \frac{C}{2} = \sqrt{\frac{\left(\frac{19}{2} - 6\right) \cdot \left(\frac{19}{2} - 5\right)}{\frac{19}{2} \cdot \left(\frac{19}{2} - 8\right)}} = \sqrt{\frac{\left(\frac{19-12}{2}\right) \cdot \left(\frac{19-10}{2}\right)}{\frac{19}{2} \cdot \left(\frac{19-16}{2}\right)}} =$$

$$= \sqrt{\frac{\left(\frac{7}{2}\right) \cdot \left(\frac{9}{2}\right)}{\frac{19}{2} \cdot \left(\frac{3}{2}\right)}} = \sqrt{\frac{\frac{63}{4}}{\frac{57}{2}}} = \sqrt{\frac{63}{114}} = \sqrt{\frac{21}{38}} = \frac{\sqrt{21}}{\sqrt{38}} = \frac{\sqrt{21} \cdot \sqrt{38}}{\sqrt{38} \cdot \sqrt{38}} = \frac{\sqrt{798}}{38}$$

$$\operatorname{tg} \frac{C}{2} = \frac{\sqrt{798}}{38}$$

$$\frac{C}{2} = \operatorname{arctg} \frac{\sqrt{798}}{38} = \operatorname{arctg} 0,743 = 36,6^\circ$$

$$C = 2 \cdot 36,6^\circ = 73,22^\circ$$

$$\operatorname{sen} C = \operatorname{sen} 73,22^\circ$$

$$\operatorname{sen} C = 0,957$$

$$\operatorname{cos} C = \operatorname{cos} 73,22^\circ$$

$$\operatorname{cos} C = 0,288$$