Law of the cosines
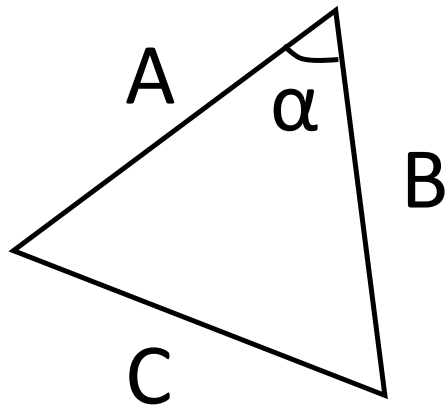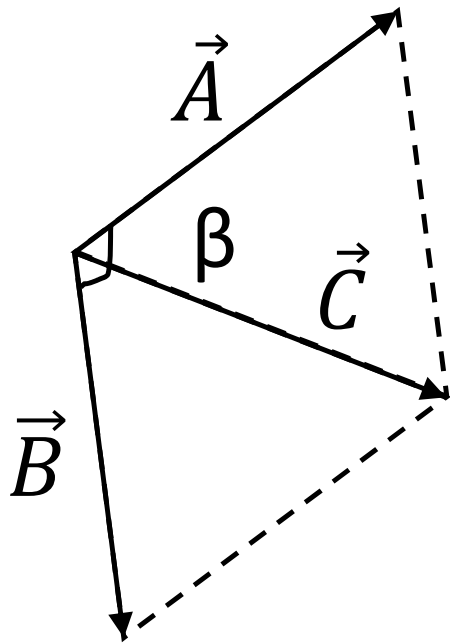

$$C^2 = A^2 + B^2 - 2\,A\,B\,\cos(\alpha)$$

Sign check: if α = 0 and A = B, then C = 0

$$C^2 = A^2 + A^2 - 2\,A\,A\,\cos(0) = 0$$

Law of the cosines

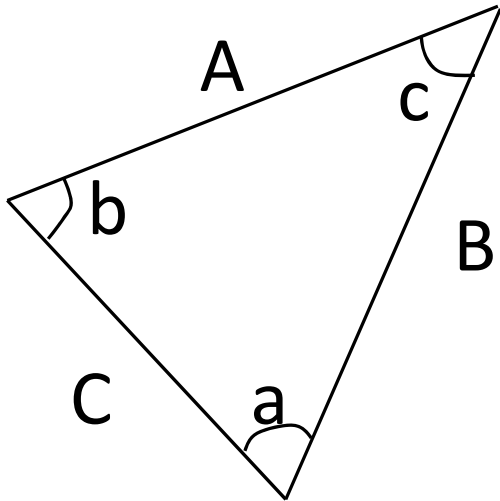$$C^2 = A^2 + B^2 + 2\,A\,B\,\cos(\beta)$$

Sign check: if β = 180 and A = B, then C = 0

$$C^2 = A^2 + A^2 + 2\,A\,A\,\cos(180) = 0$$

Law of sines

$$\frac{A}{\sin(a)} = \frac{B}{\sin(b)} = \frac{C}{\sin(c)}$$