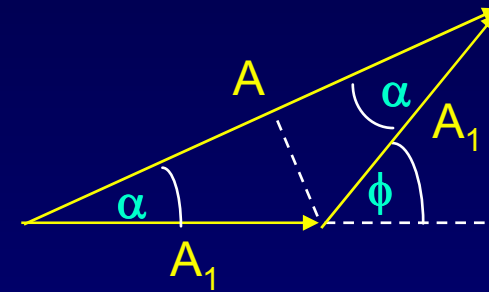


Phasors

Lets find the resultant amplitude of two waves using phasors.

- See the supplementary slide.
- See text: 35.3, 36.3, 36.4.
- See Physics 212 lecture 20.
- Phasors make it easier to solve other problems later.

Suppose the amplitudes are the same. Represent each wave by a vector with magnitude (A_1) and direction (ϕ). One wave has $\phi = 0$.

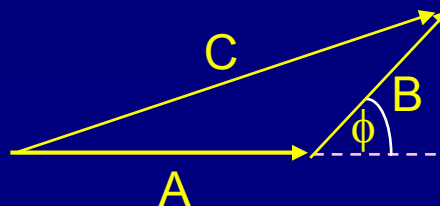


Isosceles triangle: $\alpha = \phi/2$. So, $A = 2A_1 \cos\left(\frac{\phi}{2}\right)$

This is identical to our previous result !

More generally, if the phasors have different amplitudes A and B:

$$C^2 = A^2 + B^2 + 2AB \cos \phi$$



Here ϕ is the external angle.