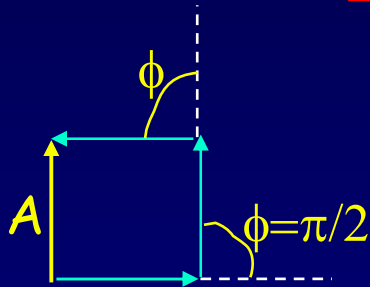


# Solution

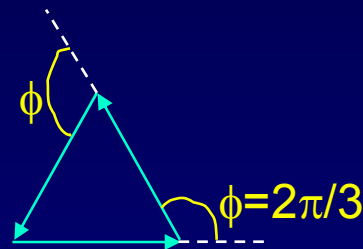
1. What value of  $\phi$  corresponds to the first zero of the 3-slit interference pattern?

a)  $\phi = \pi/2$



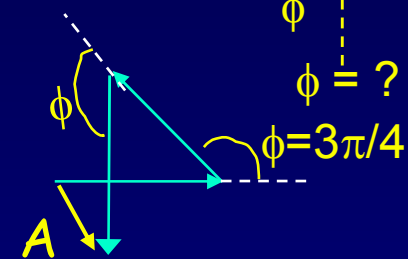
No.  
A is not zero.

b)  $\phi = 2\pi/3$

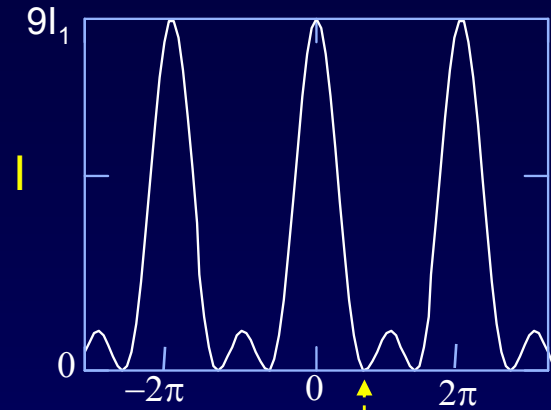


Yes!  
Equilateral triangle  
gives  $A = 0$ .

c)  $\phi = 3\pi/4$



No.  
Triangle does not close.

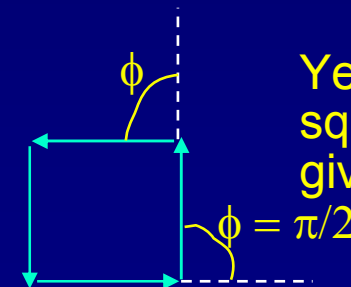


2. What value of  $\phi$  corresponds to the first zero of the 4-slit interference pattern?

a)  $\phi = \pi/2$

b)  $\phi = 2\pi/3$

c)  $\phi = 3\pi/4$



Yes. The  
square  
gives  $A = 0$ .

To get a zero, we need a closed figure.  $N\phi$  must be a multiple of  $2\pi$ , so the first zero is at  $2\pi/N$ .