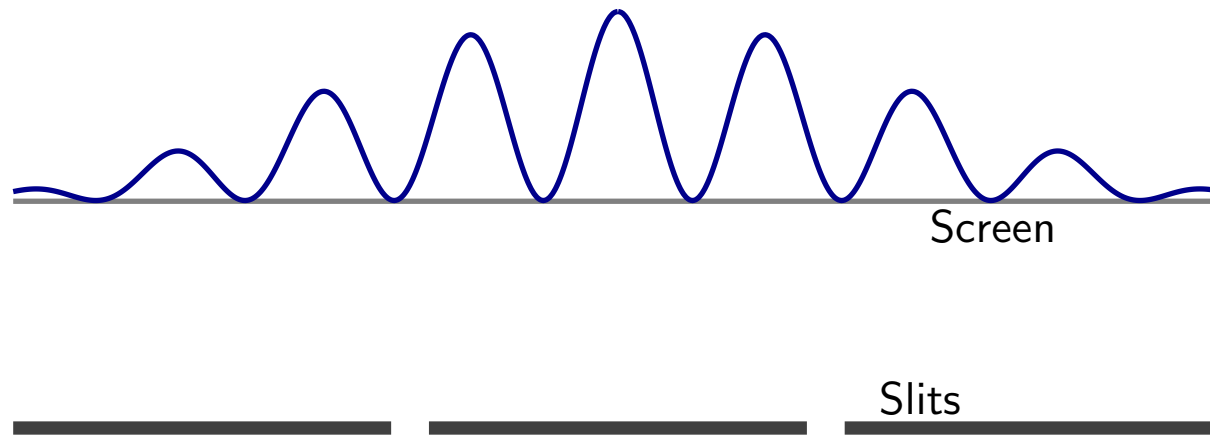


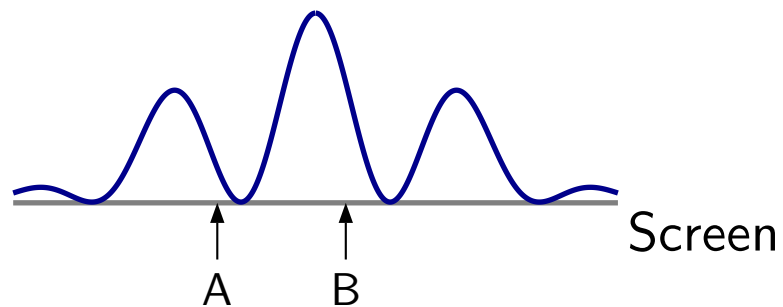
Photon Interference: Double Slits

Probability of arrival of photons at various screen locations.



Question 1

Photons are fired toward a screen. The probability distribution for arrival at various locations is as illustrated. Consider the two illustrated locations.

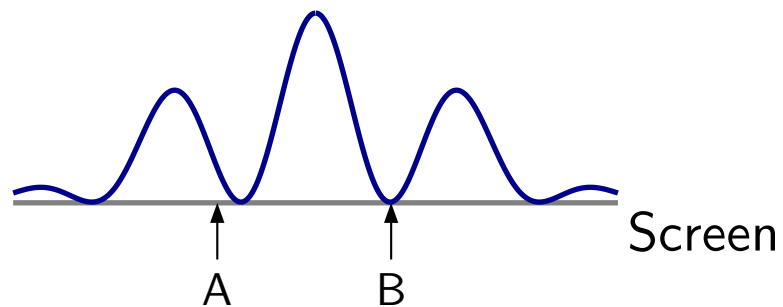


Which of the following is true?

1. Photons will never arrive at A but will sometimes arrive at B.
2. Photons will never arrive at B but will sometimes arrive at A.
3. Photons could arrive at either A or B; they are more likely to arrive at A.
4. Photons could arrive at either A or B; they are more likely to arrive at B.
5. Photons will always arrive at B.

Question 2

Photons are fired toward a screen. The probability distribution for arrival at various locations is as illustrated. Consider the two illustrated locations.



Which of the following is true?

1. Photons will never arrive at A but will sometimes arrive at B.
2. Photons will never arrive at B but will sometimes arrive at A.
3. Photons could arrive at either A or B; they are more likely to arrive at A.
4. Photons could arrive at either A or B; they are more likely to arrive at B.
5. Photons will always arrive at B.

Question 3

Two light sources produce red light of exactly the same color, corresponding to wavelength 650 nm. Light source A produces 10000 photons every second and light source B produces 10 photons every second.

Which of the following is true?

1. The energy of each photon produced by A is the same as that of each photon produced by B.
2. The energy of each photon produced by A is 10000 times that of each photon produced by B.
3. The energy of each photon produced by A is 1000 times that of each photon produced by B.
4. The energy of each photon produced by A is less than that of each photon produced by B.