

What is the phase difference $\Delta \phi$ for each of these cases?



1. (a) $\pi/2$, (b) π , (c) 2π

2. (a) $\pi/2$, (b) 2π , (c) 0

3. (a) $\pi/4$, (b) $\pi/2$, (c) π

- **4.** (a) $\pi/4$, (b) π , (c) 2π
- **5.** (a) π , (b) 2π , (c) 4π
- **6.** (a) π , (b) $\pi/2$, (c) π

Two speakers emit sounds with wavelength 2 m (in phase when emitted). If $\Delta r=0.5\,{\rm m},$ what is $\Delta\phi?$

1. 0
 4.
$$3\pi/4$$

 2. $\pi/4$
 5. π

 3. $\pi/2$
 6. $3\pi/2$



Light of wavelength 500 nm passes through a pair of slits with spacing d = 1500 nm. What is the phase difference and path length difference between the beams arriving at the point on a distant screen corresponding to the second side minimum?

1.
$$\Delta \phi = 0$$
; $\Delta r = 0$
4. $\Delta \phi = \pi$; $\Delta r = 250 \text{ nm}$

2.
$$\Delta\phi=2\pi$$
; $\Delta r=1500\,{
m nm}$

1.
$$\Delta\phi=\pi$$
; $\Delta r=250\,$ nm

5.
$$\Delta \phi = 2\pi$$
; $\Delta r = 500$ nm

3.
$$\Delta \phi = 3\pi$$
; $\Delta r = 1500 \text{ nm}$ **6.** $\Delta \phi = 3\pi$; $\Delta r = 750 \text{ nm}$

The diagram shows plots of two different oscillations. What is the phase difference between these two oscillations?

1. 0

2. $\pi/8$

