

Consider two traveling waves:

$$y_1 = A \sin(kx - \omega t) \quad \text{and} \quad y_2 = A \sin(kx + \omega t)$$

The wave velocity of the superposed pattern is

- A) positive.
- B) zero.
- C) negative.
- D) It can not be determined.

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Using  $\sin \alpha + \sin \beta = 2 \sin \left( \frac{\alpha + \beta}{2} \right) \cos \left( \frac{\alpha - \beta}{2} \right)$ , the superposed pattern is  $y(x, t) = 2 \sin kx \cos \omega t$ , it is a standing wave, so the traveling speed is 0

Answer **B**.