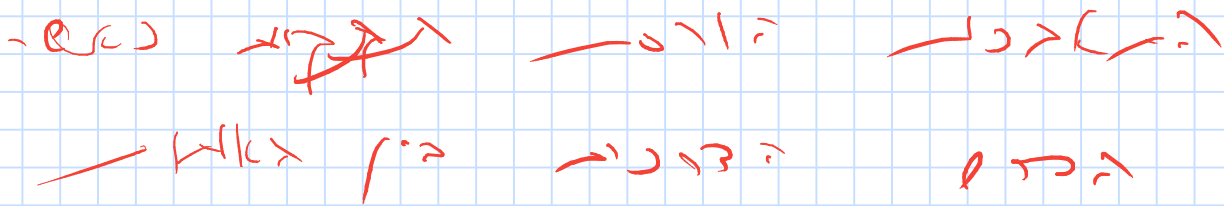
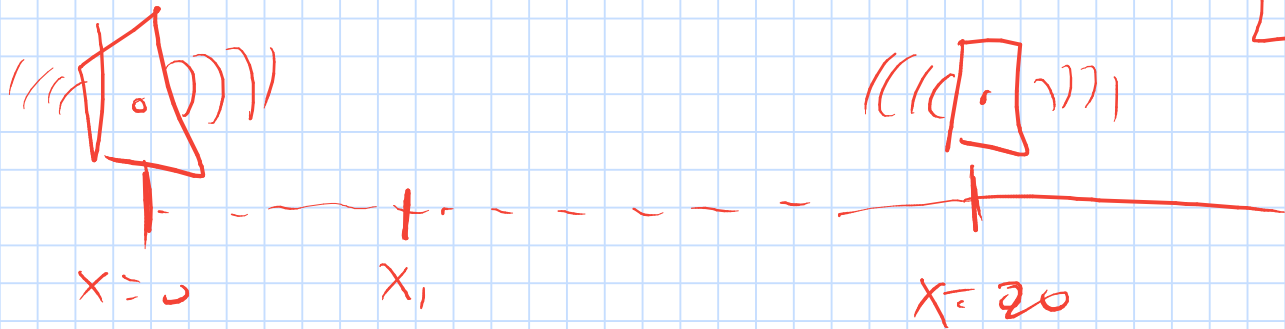


$$f = 170 \text{ Hz}$$

$$\lambda = \frac{v}{f} = \frac{340}{170} = 2 \text{ meter}$$

$$L = 20 \text{ m}$$



$$\Delta l = \frac{\lambda}{2} + \lambda \cdot n$$

$$\Delta l = (L - x_1) - x_1 = L - 2x_1$$

$$L - 2x_1 = \frac{\lambda}{2} + \lambda \cdot n$$

$$x_1 = 9.5, 8.5, 7.5, \dots$$

$$20 - 2x_1 = 1 + 2n$$

— 12 6°

$$2x_1 = 19 - 2n$$

$$x_1 = 10.5, 11.5, \dots$$

$$x_1 = 9.5 - n \quad \text{m}$$

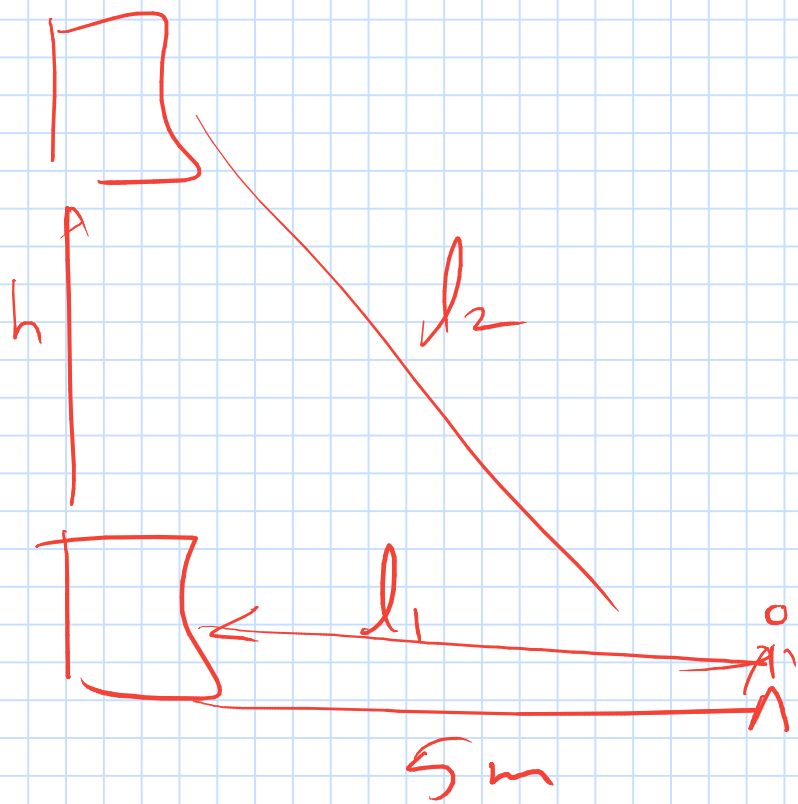
$x = 9.5$   $\approx 7.14$   $\text{m}$   $\text{sec}^{-1}$   $- 9 > 0$

$0.5 \text{ m}$   $\text{sec}^{-1}$   $\text{m}$   $\text{sec}^{-1}$   $\text{m}$   $\text{sec}^{-1}$   
 $1 \text{ sec}$   $\text{m}$   $\text{sec}^{-1}$   $\text{m}$   $\text{sec}^{-1}$

$1 \text{ m}$   $\text{sec}^{-1}$   $\text{m}$   $\text{sec}^{-1}$   $\text{m}$   $\text{sec}^{-1}$

$2$   $\text{m}$   $\text{sec}^{-1}$   $\text{m}$   $\text{sec}^{-1}$   $\text{m}$   $\text{sec}^{-1}$

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$$l_1 = 5 \quad l_2 = \sqrt{5^2 + h^2}$$

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$$l_2 - l_1 = \frac{\lambda}{2} + \lambda n \quad \lambda = 2 \text{ و } \omega$$

$$\sqrt{5^2 + h^2} - 5 = 1 + 2n$$

$$\sqrt{5^2 + h^2} = 6 + 2n \quad \uparrow^2$$

$$5^2 + h^2 = 36 + 24n + 4n^2$$

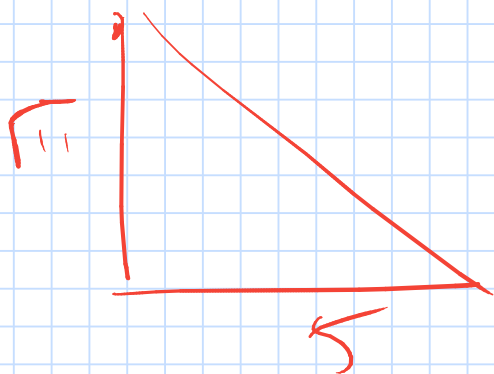
$$h^2 = 4n^2 + 24n + 11$$

$$h^2 = 4n^2 + 24n + 11$$

$$h = \sqrt{4n^2 + 24n + 11}$$

$$n=0 \quad h = \sqrt{11}$$

↓



$$\Delta l = \sqrt{11 + 25} - 5 =$$

$$\sqrt{36} - 5 = 6 - 5 = 1 \text{ cm}$$

$$\Delta l = \frac{\lambda}{2} \checkmark \quad n=1$$

$$n=1$$

$$h = \sqrt{4 + 24 + 11} = \sqrt{39}$$

$$l_2 = \sqrt{39 + 25} = \sqrt{64} = 8$$

$$\Delta l = l_2 - l_1 = 8 - 5 = 3 \rightarrow$$

$$\Delta l = \frac{\lambda}{2} + 2 \cdot n = 1 + 2 = 3 \checkmark \quad \checkmark$$

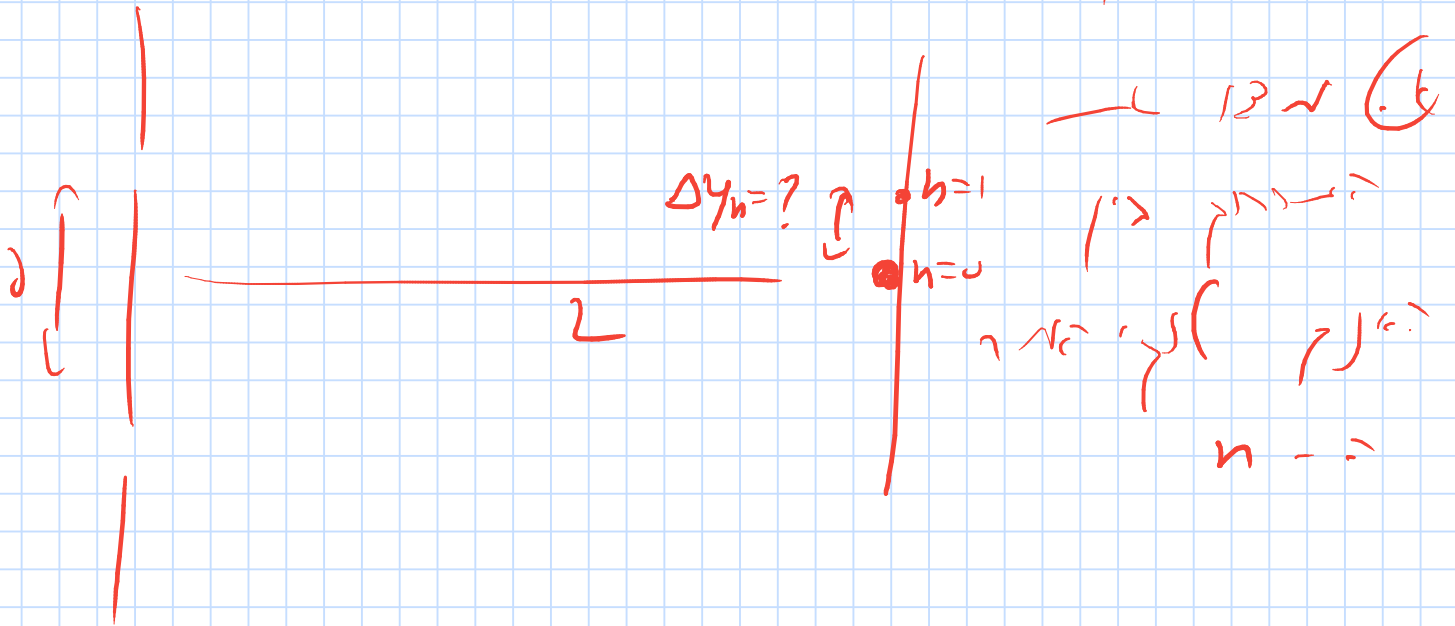
הפרש גובהי - הפרש מסלול

הפרש מסלול, הפרש גובהי

→ הפרש גובהי

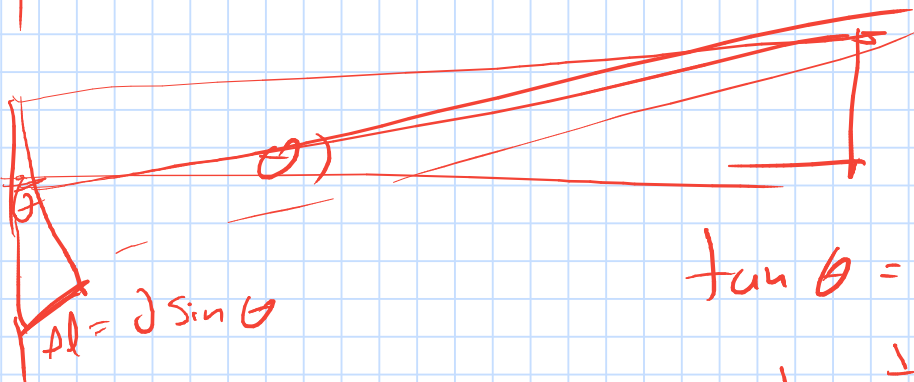
$$L \gg d$$

הפרש



$$d \sin \theta = n \lambda$$

$$\sin \theta_n = \frac{n \lambda}{d}$$



$$\tan \theta = \frac{\Delta y}{L}$$

$$\tan \theta \approx \sin \theta$$

$$\Delta y = L \cdot \sin \theta$$

$$\Delta y_n = \frac{L \cdot \lambda}{d} \cdot n$$

Path difference  $\rightarrow$   $\lambda$   $\rightarrow$   $\lambda$   $\rightarrow$   $\lambda$   $\rightarrow$   $\lambda$

$$\Delta l = \frac{\lambda}{2} + \lambda n$$

$$d \sin \theta_n = \frac{\lambda}{2} + \lambda n$$

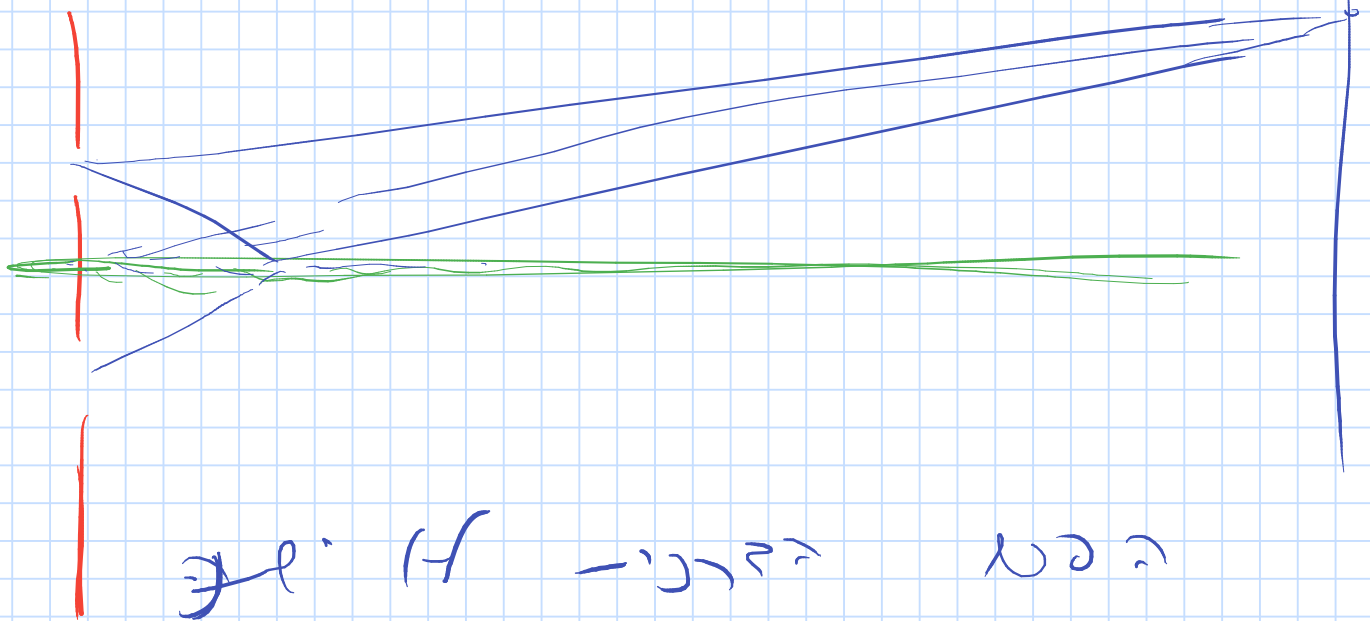
$$\sin \theta_n = \frac{\lambda}{2d} + \frac{\lambda}{d} \cdot n$$

$$y_n = \sin \theta_n \cdot L = L \left( \frac{\lambda}{2d} + \frac{\lambda}{d} \cdot n \right)$$

$$y_n = \frac{L \lambda}{d} \cdot n + \frac{L \lambda}{2d}$$

• SS' ~ GK ~ n-th order ~ n-th

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התנאי לרשתות -  $d \sin \theta = n \lambda$

$$\Delta l = d \sin \theta$$

התנאי לרשתות -  $d \sin \theta = n \lambda$   
 →  $d \sin \theta = n \lambda$  →  $d \sin \theta = n \lambda$   
 →  $d \sin \theta = n \lambda$

$$\Delta l = d \sin \theta + \frac{\lambda}{2}$$

$$d \sin \theta - \frac{\lambda}{2} = n \lambda$$

$$d \sin \theta = n \lambda + \frac{\lambda}{2}$$

$$y_n = L \cdot \sin \theta = L \cdot \left( \frac{n \lambda}{d} + \frac{\lambda}{2d} \right)$$