

1ª Série do Ensino Médio

OS.:01321211107

GABARITO COMENTADO

FÍSICA

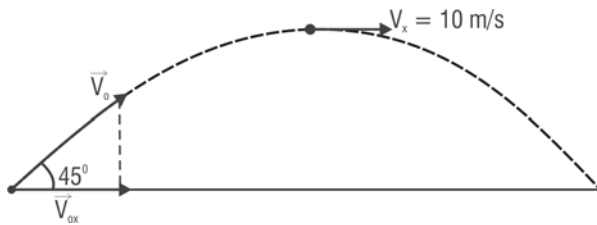
16. Letra B.

$$\Delta S_y = V_{oy}t + \frac{gt^2}{2} \qquad \Delta S_x = V_x \cdot t$$

$$12 \text{ s} = \frac{10 t^2}{2} \qquad \Delta S_x = 10 \cdot 5$$

$$12 \text{ s} = 5 t^2 \rightarrow t = 5 \text{ s} \qquad \Delta S_x = 50 \text{ m}$$

17. Letra D.

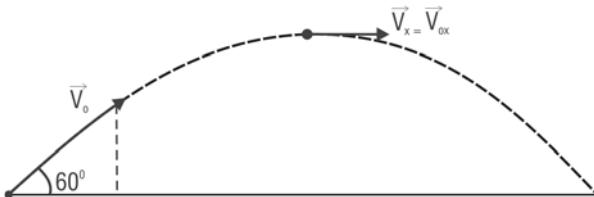


$$V_{ox} = V_x = 10 \text{ m/s}$$

$$V_{ox} = V_0 \cdot \cos 45^\circ \rightarrow 10 = V_0 \cdot \frac{\sqrt{2}}{2} \rightarrow V_0 = \frac{20}{\sqrt{2}} \rightarrow$$

$$\rightarrow V_0 = 10\sqrt{2} \text{ m/s}$$

18. Letra C.



$$V_{ox} = V_0 \cdot \cos 60^\circ \rightarrow V_{ox} = 50 \cdot 0,5 \rightarrow V_{ox} = 25 \text{ m/s}$$

$$V_x = V_{ox} = 25 \text{ m/s}$$

19. Letra D.

$$\Delta S_x = \Delta S_y$$

$$V_0 \cdot t = V_0 \cdot t + \frac{gt^2}{2} \rightarrow V_0 \cdot 1 = \frac{10 \cdot 1^2}{2} \rightarrow V_0 = 5,00 \text{ m/s}$$

20. Letra B.

Na altura máxima: $V_y = 0$

$$\begin{cases} V_{oy} = V_0 \cdot \sin 37^\circ \\ V_{oy} = 25 \times 0,60 \rightarrow V_{oy} = 15 \text{ m/s} \end{cases}$$

$$V_y = V_{oy} + yt \rightarrow 0 = 15 - 10t \rightarrow t = 1,5 \text{ s}$$

Tempo total: $t_t = 3 \text{ s}$

$$\text{(alcance)} \Delta S_x = V_{ox} \cdot t_t \rightarrow \Delta S_x = 20 \times 3 \rightarrow \Delta S_x = 60 \text{ m}$$

$$V_{ox} = V_0 \cdot \cos 37^\circ \rightarrow V_{ox} = 25 \cdot 0,8 \rightarrow V_{ox} = 20 \text{ m/s}$$

21. Letra E.

$$\begin{cases} W_H = \frac{2\pi}{T} \rightarrow W_H = \frac{\pi}{360} \text{ rad/min} \\ W_M = \frac{2\pi}{T} \rightarrow W_M = \frac{\pi}{30} \text{ rad/min} \\ W_M > W_H \end{cases}$$

22. Letra A.

$$f = \frac{n}{\Delta t} \rightarrow f = \frac{20}{10} \rightarrow f = 2 \text{ Hz}$$

$$T = \frac{1}{f} \rightarrow T = \frac{1}{2} \rightarrow T = 0,5 \text{ s}$$

23. Letra C.

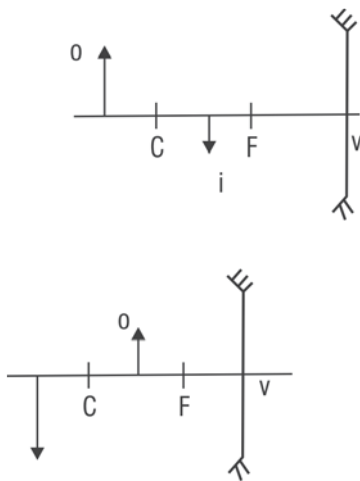
$$f = 30 \text{ rpm} = \frac{30}{60} = \frac{1}{2} \text{ Hz}$$

$$T = \frac{1}{f} \rightarrow T = \frac{1}{\frac{1}{2}} \rightarrow T = 2 \text{ s}$$

24. Letra A.

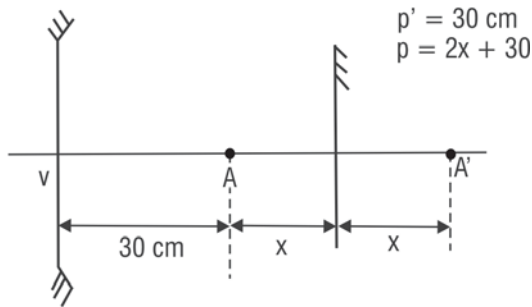
Todo raio que incide passando pelo centro de curvatura reflete-se sobre si mesmo; todo raio que incide passando pelo foco principal reflete-se paralelamente ao eixo principal.

25. Letra C.



26. Letra D.

$R = 40 \text{ cm} \rightarrow f = 20 \text{ cm}$



$$\frac{1}{f} = \frac{1}{p} + \frac{1}{p'} \rightarrow \frac{1}{20} = \frac{1}{2x + 30} + \frac{1}{30} \rightarrow$$

$$\rightarrow 30(2x + 30) = 600 + 20(2x + 30)$$

$$20x = 300 \rightarrow x = 15 \text{ cm}$$

$$d = 30 + x \rightarrow d = 30 + 15 \rightarrow d = 45 \text{ cm}$$

27. Letra D.

$o = 2 \text{ cm} = 20 \text{ mm}$
 $p = 20 \text{ cm}$
 $i = 4 \text{ mm}$
 $f < 0$ (convexo)

$$\frac{i}{o} = \frac{-p'}{p}$$

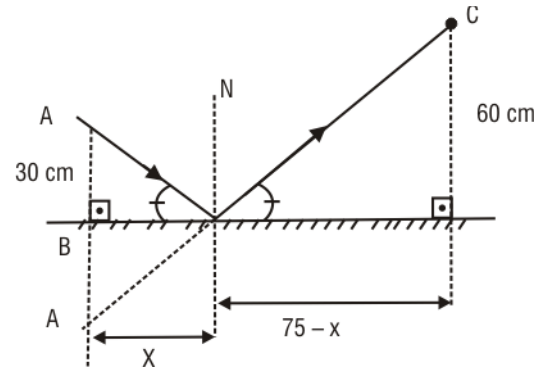
$$\frac{4}{20} = -\frac{p'}{20} \rightarrow p' = -4 \text{ cm}$$

$$\frac{1}{f} = \frac{1}{p} + \frac{1}{p'} \rightarrow \frac{1}{f/20} = \frac{1}{20/f} - \frac{1}{4/5f}$$

$$20 = f - 5f \rightarrow 4f = -20$$

$$f = -5 \text{ cm}$$

28. Letra B.

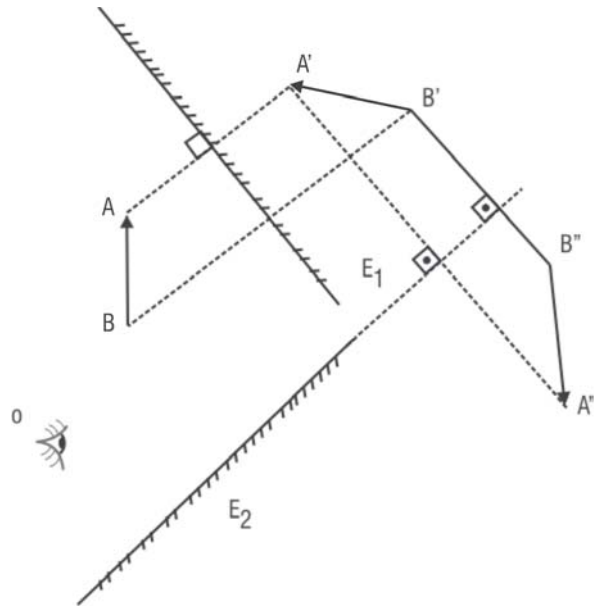


$$\frac{30}{x} = \frac{60}{75 - x} \rightarrow 60x = 2250 - 30x$$

$$90x = 2250$$

$$x = \frac{2250}{90} \rightarrow x = 25 \text{ cm}$$

29. Letra D.



30. Letra A.

$$N = \frac{360^\circ}{\alpha} - 1$$

$$35 = \frac{360^\circ}{\alpha} - 1 \rightarrow 36\alpha = 360^\circ$$

$$\alpha = 10^\circ$$