

$$\frac{y+f}{r} = r = x_m$$

1A, D

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$$\frac{1-y}{r} = 1 = y_m$$

$$y = \frac{1}{V} x + b$$

$$1 = \frac{x}{V} + \frac{f}{V}$$

$$\Rightarrow y = \frac{1}{V} x + \frac{f}{V} \checkmark$$

$$m_{AB} = -\frac{1}{V} = -V \Rightarrow m' = \frac{1}{V}$$

$$\checkmark \omega - r = r$$

$$B_C = \sqrt{9+16} = 5 \checkmark$$

$$d_{A-B_C} = \frac{|1 \cdot 1_0|}{\omega} = 1 \checkmark$$

$$m_{BC} = \frac{f}{-r} \Rightarrow y = -\frac{f}{r} x + b \Rightarrow ry + fx - d = 0$$

$$r = \frac{f}{r} + b \Rightarrow b = \frac{\omega}{r}$$

$$\frac{1}{r} = \frac{d}{f} \Rightarrow d = r \checkmark$$

$$ry - x = V \rightarrow ry - x = 1$$

$$\left\{ \begin{array}{l} ry - x = V \\ ry - x = 1 \end{array} \right\} \xrightarrow{\text{نقطه}} \frac{|V-1|}{\sqrt{r^2+1}} = \frac{4}{\sqrt{5}}$$

$$ry - x = V \Rightarrow \text{نقطه (1, f) مسقط می شود}$$

$$ry = x + r$$

$$d_{\text{مسقط}} = \frac{|d|}{\sqrt{\omega}} = \frac{1}{\sqrt{5}} \checkmark$$

$$r = \frac{r}{\sqrt{5}}$$

$$\Rightarrow \epsilon(\omega) = \frac{\sqrt{\omega}}{r} \Rightarrow S = \pi R^2 = \frac{\pi}{\epsilon} \checkmark$$

$$S = \frac{9\pi}{5}$$

$$x_m = \frac{y+f}{r} = r \Rightarrow M(r, r)$$

$$\frac{\sqrt{r}}{r} \checkmark$$

$$y_m = \frac{r+1}{r} = r$$

(2)

$$m_{AB} = -1 \Rightarrow m' = 1$$

$$y = x - r$$

$$x - r = -x + \omega \Rightarrow x = \frac{r+\omega}{2}$$

$$H(r, \omega, 1, \omega) \Leftarrow y = \frac{1}{V} \omega$$

$$d = \sqrt{\frac{1}{f} + \frac{1}{f}} = \frac{\sqrt{r}}{r} \checkmark$$

MRN-TE

$$\hookrightarrow y = -x + \omega$$

$$\frac{m+1}{r m - f} \rightarrow \frac{f - r m}{m+1} \rightarrow \frac{r m - f}{m - a} \Rightarrow \frac{f}{m+1} = \frac{a m - f r}{m - a} \quad - \omega \quad 1$$

(r)

$$r m - r a = a m r - r m - f r \Rightarrow a m r - f r m + f a = 0$$

$$\Delta < 0 \quad \checkmark$$

$$\frac{x-r}{-r} = x-1 \Rightarrow x-r = -f x + r \Rightarrow x=1 \Rightarrow A(1,1) \quad y=1$$

(r)

$$f-x = r x - 1 \Rightarrow x = \frac{a}{r} \Rightarrow C\left(\frac{a}{r}, \frac{f}{r}\right) \quad y = \frac{f}{r}$$

$$f-x = \frac{x-r}{-r} \Rightarrow r x - 1 = x - r \Rightarrow x = 0 \Rightarrow B(a, -1) \quad y = -1$$

$$\Rightarrow M\left(\frac{10}{r}, \frac{f}{r}\right) \Rightarrow AM = \sqrt{\frac{1}{r^2} + \frac{f^2}{r^2}} = \frac{\omega \sqrt{r}}{r}$$

$$m_{BC} = -1 \Rightarrow m_{AH} = 1 \Rightarrow AH \perp BC \Rightarrow y = x \quad x = f - x \Rightarrow x = \frac{f}{2} \Rightarrow H\left(\frac{f}{2}, \frac{f}{2}\right) \quad y = \frac{f}{2}$$

$$AH = \sqrt{1+1} = \sqrt{2} \quad \frac{\omega \sqrt{r}}{r \sqrt{2}} = \frac{\omega}{r} \quad \checkmark$$

$$y = \frac{1}{r} x + b$$

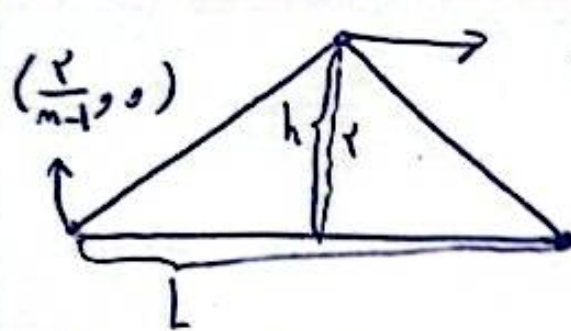
$$\sqrt{r_0} = \frac{|b|}{\sqrt{\frac{a}{f}}} \Rightarrow |b| = \sqrt{r_0} \times \frac{\sqrt{a}}{r} = \omega$$

(r)

$$A \text{ bei } \rightarrow \left(\frac{-b}{m}, 0\right) = \left(\frac{-b}{\frac{1}{r}}, 0\right) = (r b, 0) \rightarrow d = \sqrt{b^2 + f b^2} = \sqrt{1+r} \omega$$

$$B \text{ bei } \rightarrow (0, b)$$

$$= \omega \sqrt{a} \quad \checkmark$$



$$\frac{\epsilon}{m}x + r = (1-m)x + r \Rightarrow \dots = 0$$

$$y = r = h$$

(r) - 1

$$hL = d \xrightarrow{h=r} L = \frac{d}{r}$$

$$\Rightarrow L = \left| \frac{r}{m-1} + \frac{m}{r} \right| = \left| \frac{mr - m + f}{r(m-1)} \right| = \frac{d}{r}$$

$$\Rightarrow \left| \frac{mr - m + f}{m-1} \right| = d \begin{cases} \rightarrow mr - m + f = dm - d \Rightarrow \boxed{m \geq r} \\ \rightarrow mr - m + f = d - dm \Rightarrow mr + fm - 1 = 0 \\ \boxed{p > -1} \end{cases}$$

$$x-1 = -r \quad \checkmark$$

$$y = rx - r \rightarrow (0, -r) \xrightarrow{\text{rot}} (\epsilon, -1)$$

$$(r, 1) \rightarrow (r, -d) \Rightarrow \underline{y' = rx' - q} \quad \checkmark$$

(r) - 9

$$y = x + d \Rightarrow m_{AH} = -1$$

$$A(1, r)$$

$$y = -x + r$$

$$-x + r = x + d$$

(r) - 10

$$(1, r) \cdot (-1, \epsilon) \Rightarrow A' = (-r, \epsilon) \quad (r + r = 1d) \quad \checkmark \quad \begin{matrix} x = -1 \\ y = \epsilon \end{matrix} \Rightarrow H(-1, \epsilon)$$