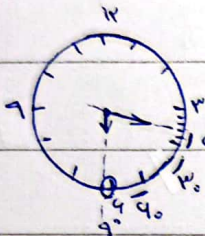


$$\frac{dE}{dt} = \frac{d}{dt} (v \cdot r) = v \cdot \frac{dr}{dt} + r \cdot \frac{dv}{dt} = 1 \cdot \frac{dr}{dt} + r \cdot \frac{dv}{dt}$$

1- الب 3: 12

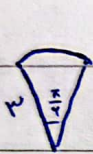
$$1 - \frac{d}{dt} (v \cdot r) + v \cdot \frac{dr}{dt} = +v \cdot \frac{dr}{dt} \rightarrow 12 - v \cdot \frac{dr}{dt} = 12$$



$$\frac{12}{v} = 9 - 4 + 12 + 9 = 11$$

2- الب 4: 11

$$12 \times 9 - \frac{d}{dt} (12 \times 1) = 11$$

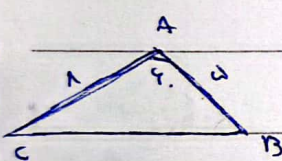


$$\frac{1}{v} \times \frac{r}{r} = \frac{r}{v}$$

3- مساحت قطاع

$$r + v + \left(\frac{r \times v}{2} \right) = 9 + \frac{r}{v}$$

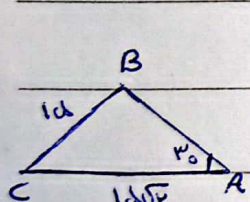
ب- 1



$$\frac{d}{dt} \left(\frac{1}{v} \times \frac{r}{r} \times \sin 120^\circ \right) = 1 \cdot \frac{dr}{dt}$$

4- الب مساحت

$$CB = \frac{r}{\sin B} \times \sin C = \frac{r}{\sin B} \times \sin C$$



$$\frac{12}{v} = \frac{120}{\sin(120 - C)} \Rightarrow \sin(120 - C) = \frac{1 \times \sqrt{3}}{120 \times \frac{1}{v}} = \frac{\sqrt{3}}{120}$$

5- 12

$$120 - C = 45 \Rightarrow -C = 45 - 120 \Rightarrow C = 75^\circ$$

$$\frac{1 \cdot 120 \times \pi}{120} = R \quad \frac{r}{v} = \frac{v}{12} \quad 45^\circ \rightarrow \frac{\pi}{4} \quad B = 45^\circ$$

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$$\frac{-\tan \alpha + v \tan \alpha}{-\tan \alpha - \tan \alpha} = \frac{v \tan \alpha}{-v \tan \alpha} = -1$$

$$-\tan \alpha + v \tan \alpha$$

$$= \frac{\tan(\pi - \alpha) + v \tan(\pi + \alpha)}{\tan(\pi - \alpha) - \tan(\pi + \alpha)}$$

$$-\tan \alpha - \tan \alpha$$

$$BC = \sqrt{a^2 + b^2 - 2ab \cos 90^\circ} = \sqrt{49} = 7$$

$$a + b + c = 7$$

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$$\tan \frac{\pi}{4} = a \quad r \tan \frac{\pi}{4} + \tan \frac{\pi}{4} = r \tan \left(\frac{\pi}{4} - \alpha \right) + \tan \left(\frac{\pi}{4} + \alpha \right)$$

$$\frac{\pi}{4} \times \frac{1}{r} = \frac{\pi}{4} = \alpha$$

$$r \tan \frac{\pi}{4} - \tan \frac{\pi}{4} = r \tan (\pi - \alpha) - \tan (\frac{\pi}{4} - \alpha)$$

$$r \tan (\pi - \alpha) - \tan (\frac{\pi}{4} - \alpha)$$

$$r \cot (\alpha) - \cot (\alpha) = \cot \alpha \quad = \frac{\alpha \frac{1}{a}}{\frac{1}{a}} \quad \frac{1}{-r \alpha - 1}$$

$$\frac{\sin \alpha + \cos \alpha}{\sin \alpha - \cos \alpha} + \frac{\sin \alpha - \cos \alpha}{\sin \alpha + \cos \alpha} = \frac{(\sin \alpha + \cos \alpha)^2 + (\sin \alpha - \cos \alpha)^2}{\sin^2 \alpha - \cos^2 \alpha} = 1$$

$$\frac{\sin^2 \alpha + \cos^2 \alpha + 2 \sin \alpha \cos \alpha + \sin^2 \alpha + \cos^2 \alpha - 2 \sin \alpha \cos \alpha}{\sin^2 \alpha - \cos^2 \alpha} = \frac{2}{\sin^2 \alpha - \cos^2 \alpha} = 1$$

$$\frac{2}{1 - \cos^2 \alpha} = 1 \quad \frac{2}{1 - \cos^2 \alpha} = 1 \quad 1 - \cos^2 \alpha = 2 \quad \cos^2 \alpha = -1 \quad \cos \alpha = \frac{1}{2}$$

$$1 + \tan^2 \alpha = 4 \quad \tan^2 \alpha = 3$$

$$\frac{1 - \cos^2 \alpha - \cos^2 \alpha + 1}{1 - \cos^2 \alpha + \cos^2 \alpha - 1} = \frac{2 - 2 \cos^2 \alpha}{-2 \cos^2 \alpha} = \frac{2(1 - \cos^2 \alpha)}{-2 \cos^2 \alpha} = \frac{1 - \cos^2 \alpha}{-\cos^2 \alpha} = \frac{1}{\cos^2 \alpha} = 4$$

$$\frac{1}{1 + \tan^2 \alpha} = \frac{1}{4} \quad \tan^2 \alpha = 3$$

$$1 + \cos^2 \alpha = r \cos^2 \alpha$$

$$\cos^2 (\frac{\pi}{4} - \alpha) = \left\{ 1 + \frac{\sqrt{r}}{r} = \frac{r + \sqrt{r}}{r} \right\} \quad r \cos^2 \alpha = 1 + \cos^2 \alpha$$

$$\cos^2 (\frac{\pi}{4} - \alpha) = \frac{r + \sqrt{r}}{r} = \frac{r + \sqrt{r}}{r}$$

$$r \cos^2 \alpha = 1 + \cos^2 \alpha$$

$$\sin^2 (\frac{\pi}{4} - \alpha) = \sin^2 (\frac{\pi}{4} - \alpha) = \cos^2 (\alpha) = \frac{r + \sqrt{r}}{r}$$



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