

الف) $\tan \frac{11\pi}{6} + \sin \frac{10\pi}{6} \cdot \cos \frac{13\pi}{6} \Rightarrow$

$\tan \left(\frac{11\pi}{6} + \frac{\pi}{6} \right) = -1$ $\sin \left(\frac{11\pi}{6} + \frac{\pi}{6} \right) = -\frac{\sqrt{3}}{2}$ $\cos \left(\frac{11\pi}{6} + \frac{\pi}{6} \right) = \frac{\sqrt{3}}{2}$

$-1 + \left(-\frac{\sqrt{3}}{2} \cdot \frac{\sqrt{3}}{2} \right) = -1 - \frac{3}{4} = -\frac{7}{4}$

ب) $\tan \frac{17\pi}{6} \cdot \sin \frac{11\pi}{6} + \cos \frac{1\pi}{6} \Rightarrow$

$\tan \left(\frac{17\pi}{6} + \frac{\pi}{6} \right) = -\frac{\sqrt{3}}{2}$ $\sin \left(\frac{17\pi}{6} + \frac{\pi}{6} \right) = \frac{\sqrt{3}}{2}$ $\cos \left(\frac{17\pi}{6} + \frac{\pi}{6} \right) = -\frac{1}{2}$

$\frac{12 \cos x - \sin x}{\cos x + \sin x} = \frac{12 \sin x - \sin x}{\cos x + \sin x} = \frac{11 \sin x}{\cos x + \sin x} = \frac{11}{5} = 2.2$

$\cos x =$

$1 + \tan^2 x = \frac{1}{\cos^2 x}$

$1 + 4 = \frac{1}{\cos^2 x} \Rightarrow \cos^2 x = \frac{1}{5} \Rightarrow \cos x = \pm \frac{1}{\sqrt{5}}$

$\tan x = 2 \Rightarrow \frac{\sin x}{\cos x} = 2$

$\cos x = \frac{1}{\sqrt{5}}$

الف) $\cos \left(\frac{11\pi}{6} + \alpha \right) \Rightarrow \cos \left(\frac{11\pi}{6} + \frac{\pi}{6} + \alpha \right) \Rightarrow \cos \left(\frac{12\pi}{6} + \alpha \right) =$

$\cos \frac{12\pi}{6} \cdot \cos \alpha - \sin \frac{12\pi}{6} \cdot \sin \alpha =$

$\left(-\frac{\sqrt{3}}{2} \cdot \frac{\sqrt{3}}{2} \right) - \left(\frac{\sqrt{3}}{2} \cdot \frac{\sqrt{3}}{2} \right) =$

$\frac{1}{2} - \frac{3}{4} = -\frac{1}{4} = -\frac{1}{4}$

$\sin^2 + \cos^2 = 1$

$\left(\frac{\sqrt{3}}{2} \right)^2 + \cos^2 = 1$

$\frac{3}{4} + \cos^2 = 1$

$\cos^2 = \frac{1}{4}$

$\cos = \pm \frac{1}{2}$

$\cos = \frac{1}{2}$

ب) $\sin \left(\frac{17\pi}{6} + \alpha \right) \Rightarrow$

$\tan \alpha = \frac{1}{\sqrt{3}} \Rightarrow \sin \left(\frac{17\pi}{6} + \frac{\pi}{6} + \alpha \right) =$

$\sin \left(\frac{18\pi}{6} + \alpha \right) \Rightarrow \sin \frac{18\pi}{6} \cdot \cos \alpha + \cos \frac{18\pi}{6} \cdot \sin \alpha =$

$\left(-\frac{\sqrt{3}}{2} \cdot \frac{\sqrt{3}}{2} \right) + \left(\frac{\sqrt{3}}{2} \cdot -\frac{\sqrt{3}}{2} \right) =$

$\sin^2 + \cos^2 = 1$

$\frac{9}{16} + \cos^2 = 1$

$\cos^2 = \frac{7}{16} \Rightarrow \cos = \pm \frac{\sqrt{7}}{4}$

$\frac{-1}{2} - \frac{1}{2} = -1$

سوال 5

حساب

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

$$r(1 - \cos^2 \alpha) + \cos^2 \alpha = 1$$

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

$$-r \cos^2 \alpha = -r$$

$$\cos^2 \alpha = \frac{r}{r}$$

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

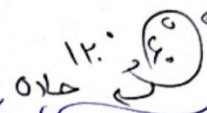
$$1 + \tan^2 \alpha = \frac{r}{r}$$

$$\tan^2 \alpha = \frac{r}{r} - 1 \Rightarrow \tan^2 \alpha = \frac{1}{r} - 1$$

$$S = \frac{1}{r} \cdot \sin \alpha \cdot r \cdot \sqrt{r} \Rightarrow r \sin \alpha = \sqrt{r}$$

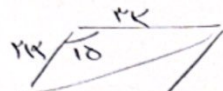
$$\frac{12}{r} = 1$$

$$\sin \alpha = \frac{r \sin \alpha}{r \sqrt{r}} \Rightarrow \frac{\sqrt{r}}{r}$$



$$S = \Delta F$$

سوال 6



$$rV = \frac{1}{r} \cdot \frac{1}{r} \cdot rK \cdot rK \Rightarrow$$

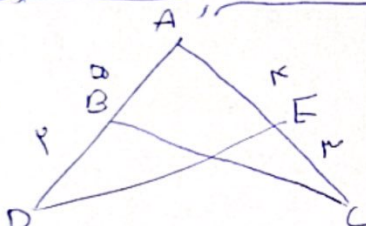
$$rV = \frac{rK^2}{r} \Rightarrow K^2 = 1A \Rightarrow K = \sqrt{1A}$$

$$r \times \sqrt{r} = 4\sqrt{r}$$

$$r \times \sqrt{r} = 9\sqrt{r}$$

$$r(4\sqrt{r} + 9\sqrt{r}) = r \cdot \sqrt{r}$$

سوال 7



$$\frac{1}{r} \cdot V \cdot F \sin A = \frac{1}{r} \cdot \Delta \cdot V \cdot \sin A = 1, V_0$$

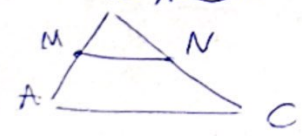
$$1F \sin A - \frac{r_0}{r} \sin A = 1, V_0$$

$$\frac{V}{r} \sin A = 1, V_0$$

$$\sin A = \frac{1}{r} \Rightarrow \sin A = \frac{1}{r}$$

$$A = r' \Rightarrow \tan^2 \alpha = \frac{\sqrt{r}}{r}$$

سوال 8



$$rBN = rNC$$

$$BN = r$$

$$NC = r$$

$$AM = \frac{r}{\Delta} BM$$

$$AM = \frac{r}{\Delta} BM \Rightarrow \frac{BM}{AM} = \frac{1}{\frac{r}{\Delta} BM} = \frac{\Delta}{r}$$

$$S = \frac{1}{r} \cdot AB \cdot BC \cdot \sin B$$

$$S_{AMN} = \frac{1}{r} \cdot r \cdot BM \cdot \sin B$$

سوال 9

$$S_{ABC} = r \cdot S_{BMN}$$

$$AB = BM + AM \Rightarrow$$

$$AB = BM + \frac{r}{\Delta} BM$$

$$AB \times \Delta = r BM$$

$$AB = \frac{r}{\Delta} BM$$

$$\frac{|\sin \alpha|}{\cos \alpha} = \frac{-1}{\cot \alpha} \Rightarrow \frac{|\sin \alpha|}{\cos \alpha} = \frac{-\sin \alpha}{\cos \alpha}$$

$$|\sin \alpha| = -\sin \alpha$$

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

$$-\cos \alpha = \cos \alpha \Rightarrow \cos \alpha < 0$$

سوال 10

$$r \sin \alpha$$