

$$\text{الف) } \tan \frac{11\pi}{8} + \frac{\sin \frac{13\pi}{8}}{\cos \frac{13\pi}{8}} = \tan \left(2\pi + \frac{3\pi}{4} \right) + \frac{\sin \left(2\pi + \frac{3\pi}{4} \right)}{\cos \left(2\pi + \frac{3\pi}{4} \right)}$$

$$= -1 + \left(\frac{-\sqrt{2}}{2} \right) \left(-\frac{\sqrt{2}}{2} \right) = -1 + \frac{1}{2} = \boxed{-0.5} \quad \checkmark$$

$$\text{ب) } \tan \frac{17\pi}{4} \sin \frac{11\pi}{4} + \cos \frac{13\pi}{4} = \tan \left(2\pi + \frac{5\pi}{4} \right) \sin \left(2\pi + \frac{3\pi}{4} \right) + \cos \left(2\pi + \frac{3\pi}{4} \right)$$

$$= \left(\frac{-\sqrt{2}}{2} \right) \times \left(-\frac{\sqrt{2}}{2} \right) + \left(-\frac{1}{2} \right) = \frac{1}{2} - \frac{1}{2} = \boxed{0} \quad \checkmark$$

$$\text{Let } x = y \rightarrow \frac{\cos x}{\sin x} = \frac{y}{1}$$

$$\frac{y \cos x - \sin x}{\cos x + \sin x} = \frac{y(ey) - y}{ey + y} = \frac{11y}{2y} = \boxed{\frac{11}{2}} \quad \checkmark$$

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

$$\rightarrow r^2 \cos^2 \alpha + \cos^2 \alpha = \cos^2 \alpha = 1 \rightarrow \cos \alpha = \pm \frac{1}{r}$$

$$\rightarrow \cos \alpha = \pm \frac{1}{\sqrt{2}} = \pm \frac{\sqrt{2}}{2} \quad \text{پس } \cos \alpha = -\frac{\sqrt{2}}{2} \quad \checkmark$$

$$\cos \left(\frac{11\pi}{8} + \alpha \right) = \cos \left(\frac{9\pi}{8} + \alpha \right) = \cos \left(\frac{9\pi}{8} \right) \cos \alpha - \sin \left(\frac{9\pi}{8} \right) \sin \alpha$$

$$\cos \alpha = \sqrt{1 - \frac{1}{100}} = \sqrt{\frac{99}{100}} = \frac{\sqrt{99}}{10} = \frac{\sqrt{9 \times 11}}{10} = \frac{3\sqrt{11}}{10} \rightarrow \left(\frac{3\sqrt{11}}{10} \times \frac{\sqrt{2}}{10} \right) - \left(\frac{\sqrt{2}}{10} \times \frac{\sqrt{2}}{10} \right) = \frac{3\sqrt{22}}{100} - \frac{2}{100} = \boxed{-0.14} \quad \checkmark$$

$$\tan \alpha = \frac{1}{\sqrt{2}} \rightarrow \sin^2 \alpha + \frac{1}{2} \sin^2 \alpha = 1 \rightarrow \sin^2 \alpha = \frac{2}{3} = \frac{1}{\frac{3}{2}} = \frac{1}{1.5} = \frac{\sqrt{2}}{1.5} \rightarrow \cos \alpha = \frac{\sqrt{2}}{1.5}$$

$$\sin \left(\frac{13\pi}{8} + \alpha \right) = \sin \left(\frac{9\pi}{8} + \alpha \right) = \sin \left(\frac{9\pi}{8} \right) \cos \alpha + \cos \left(\frac{9\pi}{8} \right) \sin \alpha = \left(\frac{-\sqrt{2}}{2} \times \frac{\sqrt{2}}{1.5} \right) + \left(\frac{-\sqrt{2}}{2} \times \frac{\sqrt{2}}{1.5} \right) = -\frac{1}{1.5} - \frac{1}{1.5} = \boxed{-0.67} \quad \checkmark$$

$$r \sin^2 \theta + \cos^2 \theta = \frac{r}{2}$$

$$\frac{\sin^2 \theta + \cos^2 \theta}{\sin^2 \theta} = \frac{r}{2} \rightarrow \cos^2 \theta - \sin^2 \theta = 1 - \frac{1}{r} = \frac{r}{2}$$

$$\tan^2 \theta = \frac{\sin^2 \theta}{\cos^2 \theta} = \frac{\frac{1}{r}}{\frac{r}{2}} = \boxed{\frac{1}{r}} \quad \checkmark$$

$$\frac{a}{\sin A} = \frac{c \times \sqrt{2} \times \sin 45^\circ}{r} \quad \frac{r \sqrt{2} \sin 45^\circ}{r} = \frac{c}{r} \rightarrow \sqrt{2} \sin 45^\circ = \frac{c}{r}$$

$$\rightarrow r \sqrt{2} \sin 45^\circ = c \rightarrow \sin 45^\circ = \frac{c}{r \sqrt{2}} = \frac{\sqrt{2}}{r} \begin{cases} \alpha_1 = 45^\circ \\ \alpha_2 = 135^\circ \end{cases}$$

$$\frac{\Delta \text{mol}}{\Delta t \text{ min}} = \frac{110^\circ}{40^\circ} \quad \boxed{r} \quad \checkmark$$

$$r \pi \times r \pi \times \sin 60^\circ = 4 \pi^2 \times \frac{1}{r} \quad r \pi^2 = \Delta \epsilon \rightarrow \pi^2 = 1 \text{ A}$$

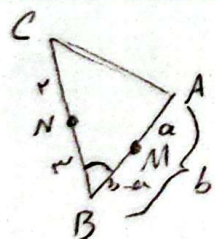
$$\rightarrow \pi = \pm r \sqrt{r} \rightarrow \underline{c \sqrt{r}} \rightarrow \begin{cases} r(r \sqrt{r}) = 4 \sqrt{r} \\ r(c \sqrt{r}) = 9 \sqrt{r} \end{cases}$$

$$r p_2 \quad r \times (4 \sqrt{r} + 9 \sqrt{r}) = \boxed{130 \sqrt{r}} \quad \checkmark$$

$$S_{ABC} - S_{ADE} = \left(\frac{\Delta \times V \times \sin A}{r} \right) - \left(\frac{V \times \epsilon \times \sin A}{r} \right) = 1.178$$

$$\rightarrow \frac{V \times \sin A}{r} = 1.178 \rightarrow V \sin A = 0.18 \rightarrow \sin A = \frac{1}{r}$$

$$\hat{A} \begin{cases} 60^\circ \\ 120^\circ \end{cases} \xrightarrow{\text{مقابل}} \hat{A} = 120^\circ \rightarrow \boxed{\cos 120^\circ = -\frac{\sqrt{3}}{2}} \quad \checkmark$$



$$\frac{\Delta \times b \times \sin B}{r \times (b - a) \times \sin B} = \frac{\Delta b}{r b - r a} = r \rightarrow \Delta b = 9b - 9a$$

$$9a = \epsilon b$$

$$\frac{a}{\epsilon} \alpha = b$$

$$\frac{BM}{AM} = \frac{\frac{\Delta}{\epsilon} \alpha}{\frac{\epsilon}{2} \alpha} = \boxed{\frac{\Delta}{\epsilon}} \quad \checkmark$$

$$\frac{|\sin \alpha|}{\cos \alpha} = -\frac{\sin \alpha}{\cos \alpha} \rightarrow \sin \alpha < 0$$

$$\frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1 + \sin \alpha}{|\cos \alpha|} \rightarrow \cos \alpha < 0$$

$$\Rightarrow \boxed{\text{مقابل}} \quad \checkmark$$