

الف) $(\frac{\sqrt{2}}{2}, \frac{\sqrt{3}}{2}) (\frac{1}{2}, \frac{\sqrt{3}}{2}) = \frac{2}{4} - \frac{3}{4} = -\frac{1}{4}$

ب) $\frac{1 + \frac{1}{\sqrt{3}}}{3 + 1} = \frac{1}{4}$

الف) $AH = \sqrt{2} \times \frac{\sqrt{2}}{2} = \frac{\sqrt{12}}{2} = \sqrt{3} \rightarrow \hat{C} = 30^\circ \rightarrow \frac{\sqrt{3}}{2} \times \sqrt{3} = 3$
 $\boxed{AC = 3}$

ب) $AC = \frac{3}{\frac{1}{\sqrt{3}}} = \frac{3\sqrt{3}}{1} = 3\sqrt{3} \rightarrow AH = 3\sqrt{3} \times \frac{1}{2} = \frac{3\sqrt{3}}{2} \rightarrow \sin B = \frac{3\sqrt{3}}{3\sqrt{3}} = 1$
 $\rightarrow \frac{1}{2} = \frac{\sqrt{2}}{2} \rightarrow \boxed{\hat{B} = 45^\circ}$

الف) $\frac{100\sqrt{3}}{\frac{1}{2}} = 100\sqrt{3} = AD \rightarrow BD = 100\sqrt{3} \times \frac{1}{2} = 50$

$\rightarrow AC = \frac{50\sqrt{3}}{\frac{1}{2}} = 100\sqrt{3} \rightarrow BC = 100\sqrt{3} \times \frac{\sqrt{3}}{2} = 150$

$\rightarrow \boxed{x = 150 - 50 = 100}$ $\rightarrow PC = 1 + 1^2 = \sqrt{2} \rightarrow DC = \sqrt{2}$

ب) $AC = \frac{2}{\frac{1}{2}} = 4 \rightarrow BC = 4 \times \frac{\sqrt{3}}{2} = 2\sqrt{3} \rightarrow \boxed{\sin A = \frac{1}{\sqrt{3}}}$

$AB \times AC \times \frac{1}{2} \times \frac{\sqrt{2}}{2} = c \times b \times \frac{\sqrt{2}}{2} = S_{ABC}$

$a \times b \times \frac{1}{2} \times \frac{1}{2} = a \times b \times \frac{1}{4} = S_{ABC}$

$a = \sqrt{2} b$

$\frac{S_{ADE}}{S_{BDC}} = \frac{\frac{1}{2} \times 1 \times 1 \times \sin 60^\circ}{\frac{1}{2} \times 4 \times 3 \times \sin 60^\circ} = \frac{1}{12} = \boxed{\frac{1}{12}}$

$$1) \quad \frac{\sqrt{3}}{2} = \frac{1}{2} \quad \text{الن}$$

$$2) \quad \frac{\sqrt{3}}{2} \times \frac{1}{2} = \frac{\sqrt{3}}{4}$$

$$m = \tan 150^\circ = -\sqrt{3} \rightarrow y = -\sqrt{3}x + b$$

$$y = m + \frac{a}{r} \rightarrow b = \frac{a}{r} \rightarrow \boxed{mb = \frac{-a\sqrt{3}}{2}} \rightarrow \underline{1} \text{ سوال}$$

$$f\left(\frac{2\pi}{3}\right) = \cos\left(\pi + \frac{2\pi}{3}\right) + \sin\left(\frac{\pi}{3} - \frac{2\pi}{3}\right) - \tan\left(\frac{\pi}{3} + \frac{2\pi}{3}\right)$$

$$\text{سوال 1} \rightarrow \tan \theta = \frac{r-1}{r+1} = \frac{1}{2} \rightarrow \frac{\sin \theta}{\cos \theta} = \frac{1}{2} \rightarrow \cos \theta = \frac{2}{\sqrt{5}}$$

$$\boxed{\cos \theta = \frac{2\sqrt{5}}{5}} \quad \text{سوال 1}$$

$$f\left(\frac{2\pi}{3}\right) = \cos\left(\pi + \frac{2\pi}{3}\right) + \sin\left(\frac{\pi}{3} - \frac{2\pi}{3}\right) - \tan\left(\frac{\pi}{3} + \frac{2\pi}{3}\right)$$

$$f(150^\circ) = \cos(225^\circ) + \sin(-30^\circ) - \tan(90^\circ)$$

$$f(150^\circ) = \frac{\sqrt{3}}{2} - \frac{1}{2} - \sqrt{3} = \boxed{-\sqrt{3}}$$

$$\frac{\cos n - \sin n}{-\cos n + \sin n} = \frac{(\cos n - \sin n)}{-(\cos n - \sin n)} = \boxed{-1}$$