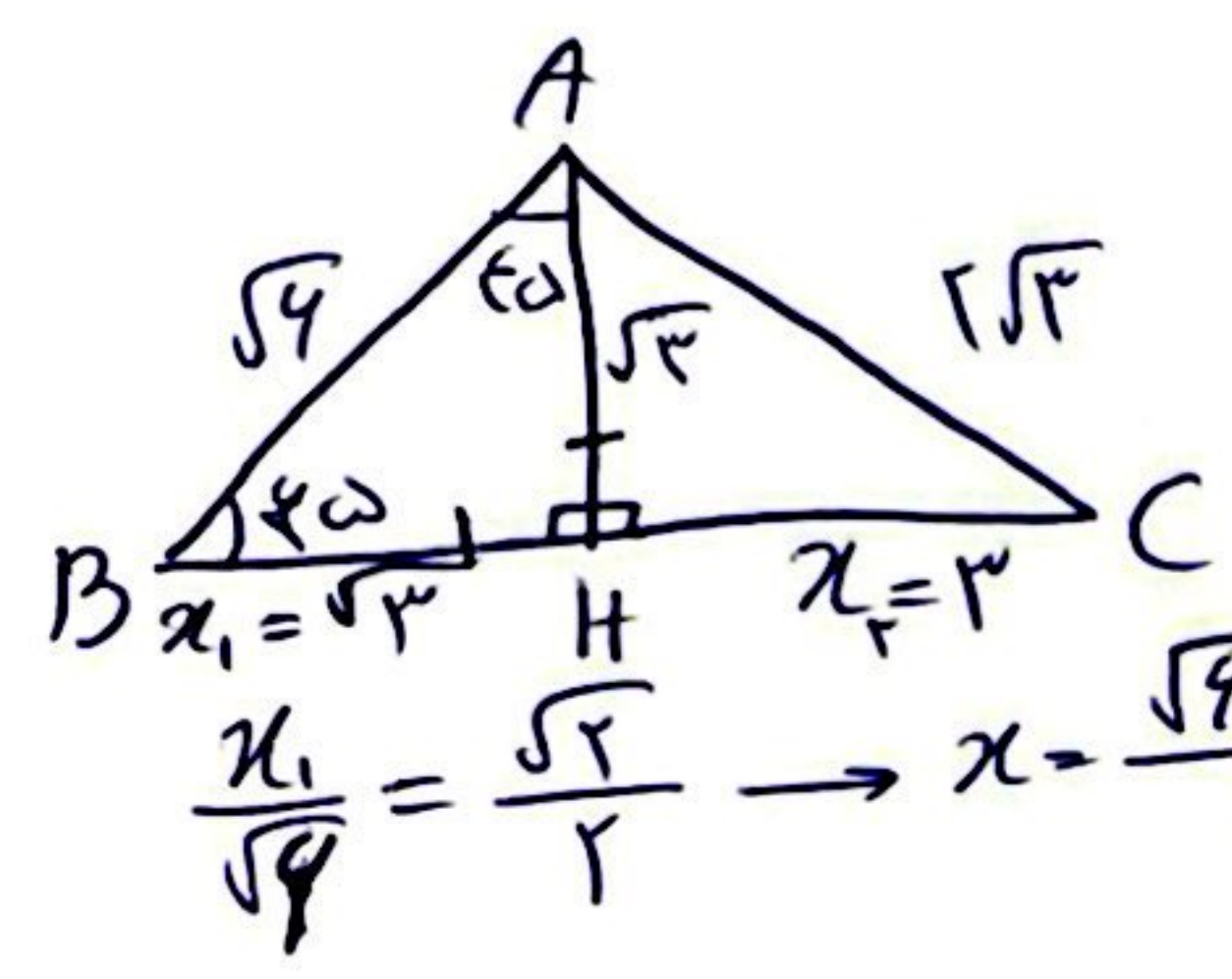


الف) $\left(\frac{\sqrt{2} - \sqrt{3}}{2} \right) \left(\frac{\sqrt{2} + \sqrt{3}}{2} \right) = \frac{\cancel{2} - \cancel{3}}{4} = \frac{-1}{4}$

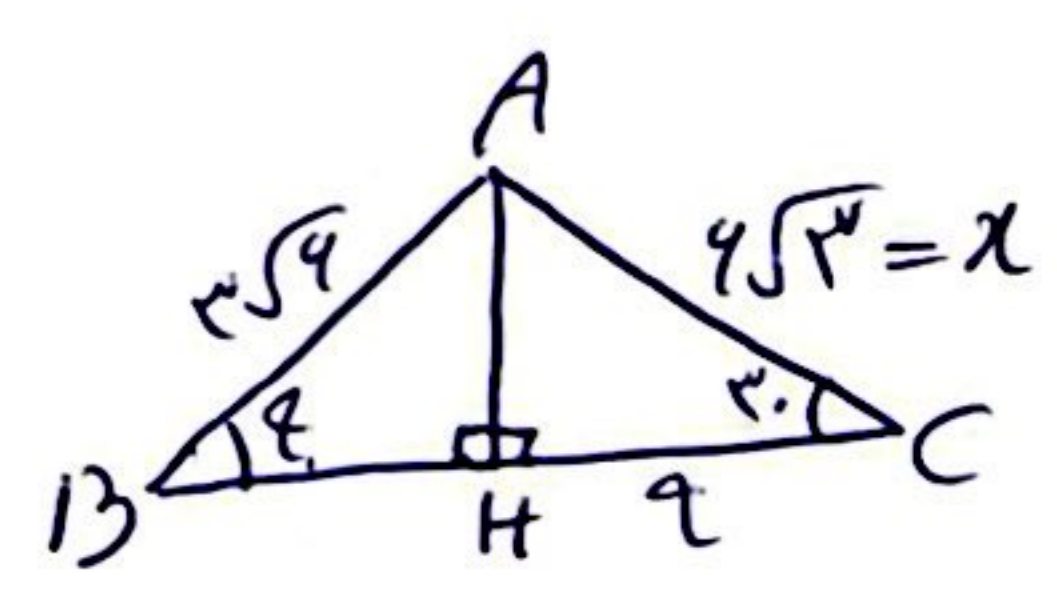
ب) $\frac{1 + \cancel{2} \times \frac{1}{\cancel{2}}}{\frac{\cancel{2} \times \cancel{2}}{\cancel{2}} + \frac{\cancel{2} \times \frac{1}{\cancel{2}}}{\cancel{2}}} = \frac{2}{4} = \frac{1}{2}$

الف ۲

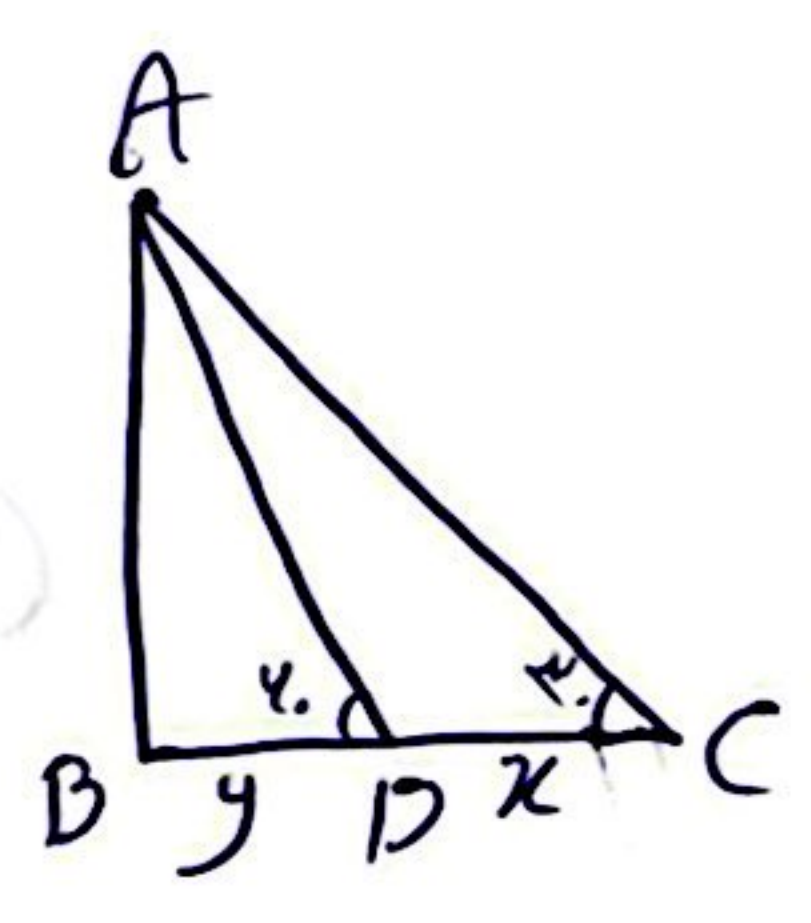


$(2\sqrt{3})^2 - (\sqrt{3})^2 = x_r^2$
 $12 - 3 = 9 \rightarrow x_r^2 = 9 \rightarrow x_r = 3 = HC$

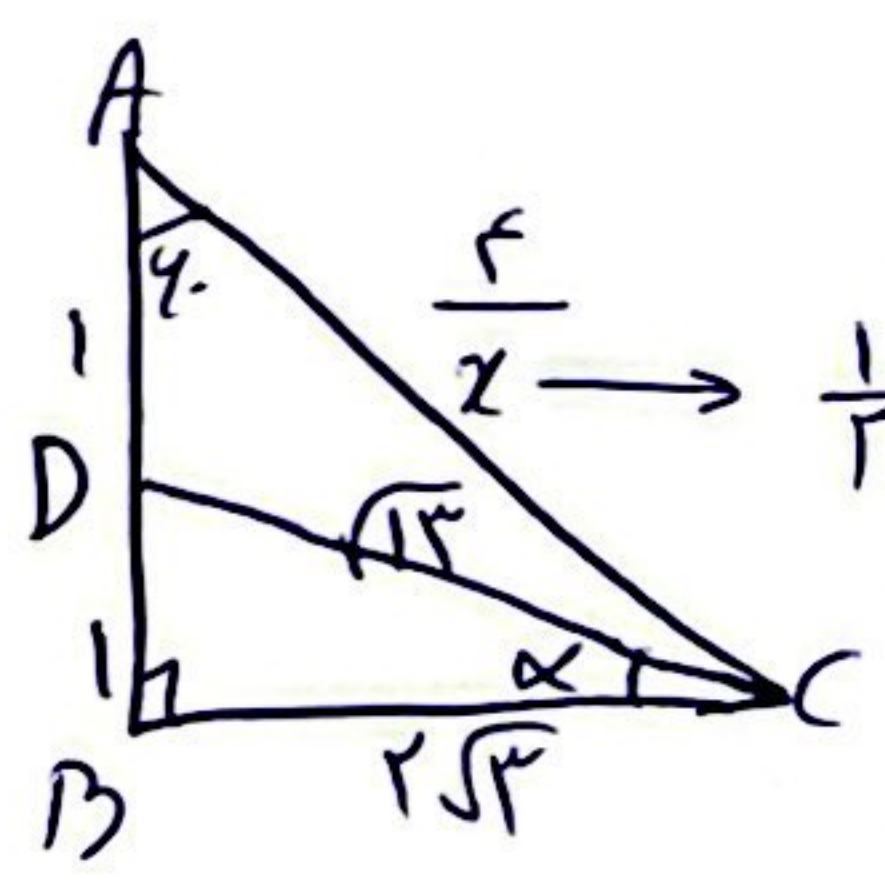
$\frac{x_r}{\sqrt{4}} = \frac{\sqrt{2}}{2} \rightarrow x = \frac{\sqrt{4} \times \sqrt{2}}{2} = \frac{2\sqrt{2}}{2} = \sqrt{2}$



$\frac{\sqrt{3}}{2} = \frac{9}{x} \rightarrow x = \frac{18}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = 6\sqrt{3}$
 $\frac{4\sqrt{3}}{\sin B} = \frac{2\sqrt{3}}{\frac{1}{2}} \rightarrow \sin B = \frac{4\sqrt{3}}{4\sqrt{3}} \times \frac{\sqrt{4}}{\sqrt{4}} = \frac{\sqrt{16}}{4} = \frac{4}{4} = 1 \rightarrow B = 90^\circ$

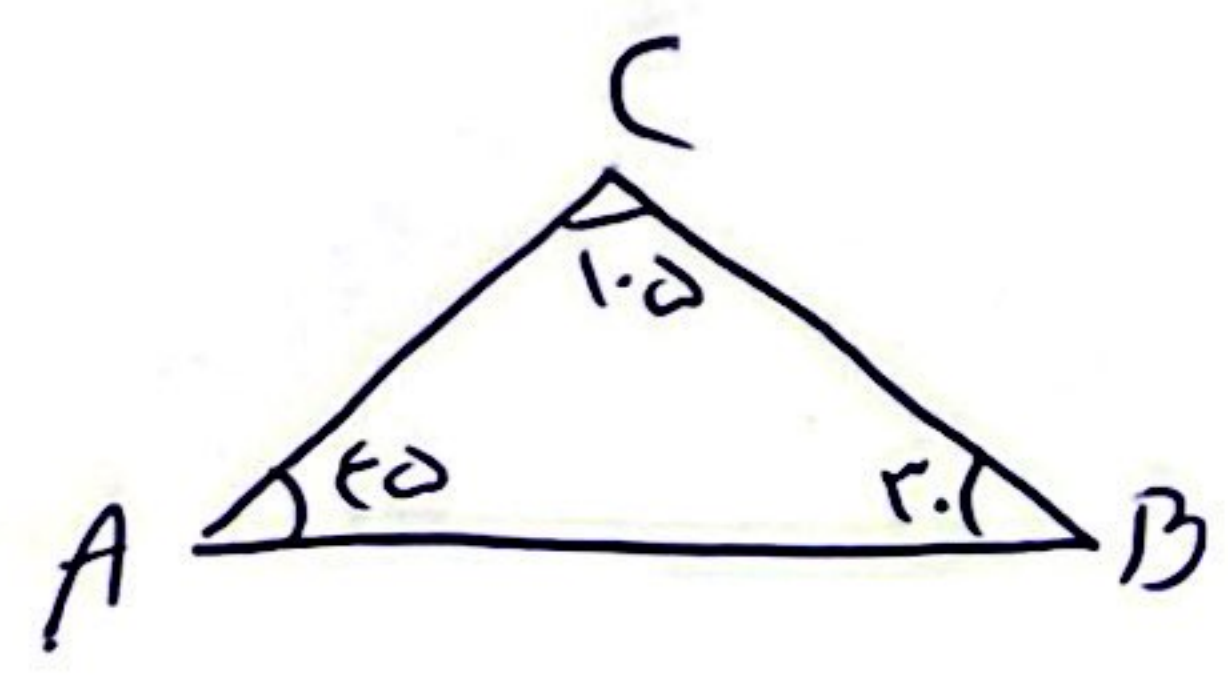


$\tan 45^\circ = \sqrt{3} \quad \tan 45^\circ = \frac{1}{\sqrt{3}} \quad y = \sqrt{3} = \frac{1 \cdot \sqrt{3}}{y} \rightarrow y = 1$
 $x \rightarrow \frac{1}{\sqrt{3}} = \frac{1 \cdot \sqrt{3}}{1 + x} \rightarrow \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{1 + x} \rightarrow 1 + x = 3 \rightarrow x = 2$



$\frac{1}{2} \rightarrow \frac{1}{2} = \frac{1}{x} \rightarrow x = 2$
 $BC \rightarrow BC^2 = 14 - 1 = 13 \rightarrow BC = \sqrt{13}$
 $DC = \sqrt{12 + 1} = \sqrt{13}$

$\frac{1}{\sin 45^\circ} = \sqrt{13} \rightarrow \sin 45^\circ = \frac{1}{\sqrt{13}}$



$\frac{AC}{\sin 45^\circ} = \frac{AB}{\sin 45^\circ} \rightarrow \frac{AB}{AC} = \frac{\sin 45^\circ}{\sin 45^\circ} = \frac{\frac{\sqrt{2}}{2}}{\frac{1}{2}} = \frac{\sqrt{2}}{1} = \sqrt{2}$

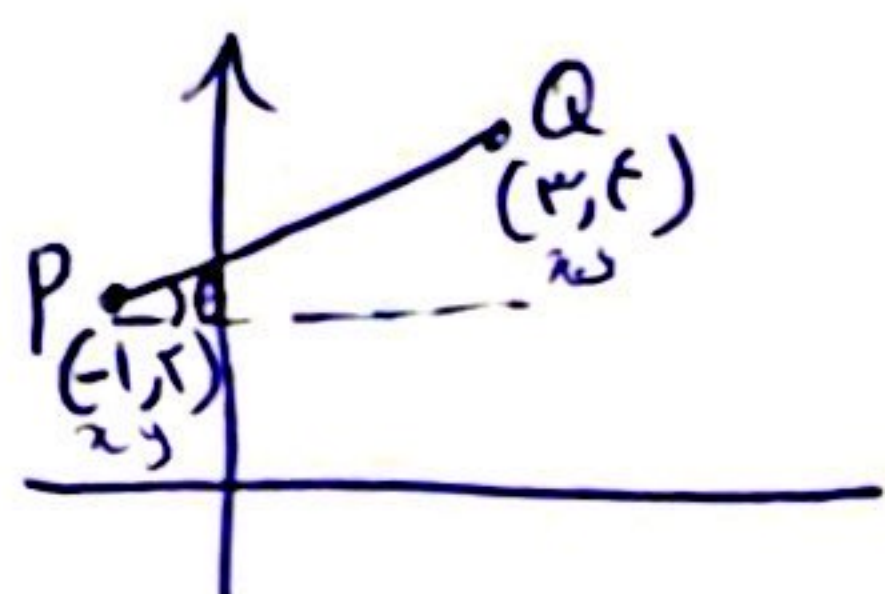
$\sin(45^\circ + 45^\circ) = \sin 45^\circ \cos 45^\circ + \sin 45^\circ \cos 45^\circ = \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} + \frac{1}{2} \times \frac{\sqrt{2}}{2} = \frac{\sqrt{2} + \sqrt{2}}{4} = \frac{2\sqrt{2}}{4} = \frac{\sqrt{2}}{2}$

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$$\frac{S_{ABF}}{S_{BCD}} = \frac{\sin A \times \frac{1}{2} \times 4 \times 4}{\sin A \times \frac{1}{2} \times 4 \times 4} = \frac{4}{9}$$

و) $S_{\square} = ab \sin \alpha = 4 \times 4 \times \frac{\sqrt{3}}{2} = 4\sqrt{3}$ ب) $S_{\diamond} = \frac{1}{2} ab \sin \alpha =$

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



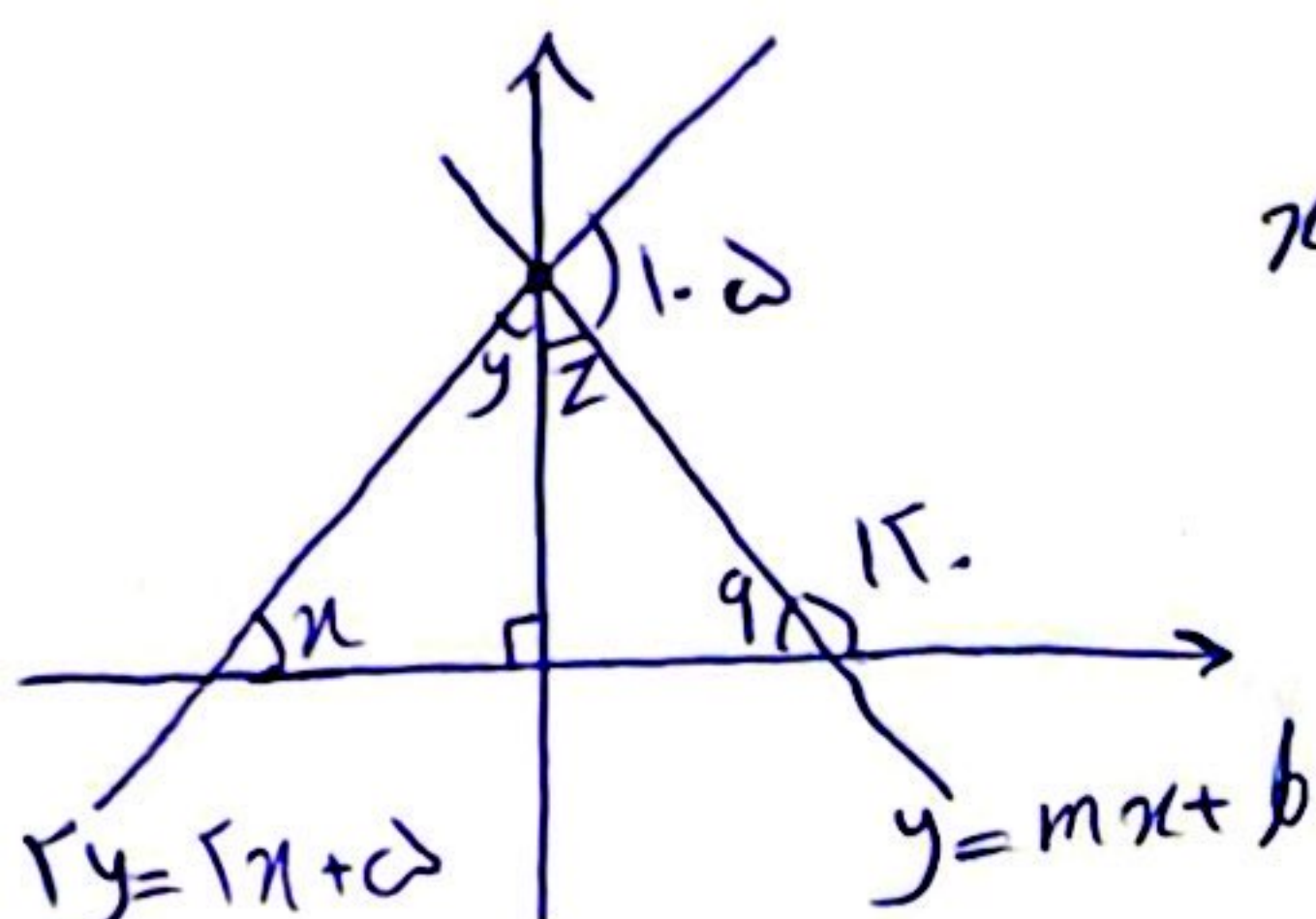
$$\cos \theta = \frac{4}{5} \rightarrow 1 + \tan^2 = \frac{1}{\cos^2}$$

$$f = 4a + b$$

$$-(2 = -a + b)$$

$$2 = 5a \rightarrow a = \frac{2}{5} = \tan \theta$$

$$1 + \frac{1}{f} = \frac{5}{f} \rightarrow \cos^2 = \frac{f}{5} \rightarrow \cos \theta = \frac{2}{\sqrt{5}}$$



$$x = 0 \rightarrow y = 0 + \frac{5}{2} \Rightarrow y = 2.5$$

$$2.5 = m \cdot 0 + b \rightarrow b = 2.5$$

$$mb = \frac{5}{2} \times \sqrt{3} = \frac{5\sqrt{3}}{2}$$

$$m = \tan 15^\circ = \frac{\sqrt{3}}{4}$$

$$y = x + \frac{5}{2} \rightarrow \tan = 1 = \tan 45^\circ \rightarrow 45^\circ = x, y \rightarrow y + z = 180^\circ - 45^\circ \rightarrow z = 135^\circ, q = 45^\circ$$

$$f\left(\frac{5\pi}{9}\right) = \cos\left(\frac{\pi + \frac{5\pi}{9}}{2}\right) + \sin\left(\frac{\frac{\pi}{2} - \frac{5\pi}{9}}{2}\right) - \tan\left(\frac{\frac{\pi}{2} + \frac{5\pi}{9}}{2}\right)$$

$$\frac{11. + 10. = 21.}{10.} \quad \frac{9. - 10. = -1.}{9.} \quad \frac{17. + 10. = 27. - 24. = 3.}{17.}$$

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

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

3

4

5

1

9

10