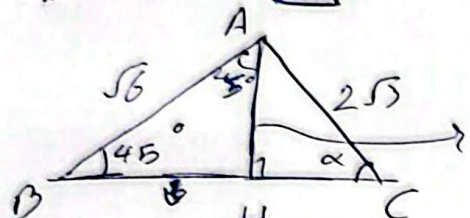


فرقہ ۱ علیہ وسلم (تکلیف) 20

الف) $(\sin 135^\circ + \sin 330^\circ)(\cos 315^\circ + \cos 150^\circ) = \left(\frac{\sqrt{2}-\sqrt{3}}{2}\right)\left(\frac{\sqrt{2}+\sqrt{3}}{2}\right) = -1$ ۱۳، ۷۵۵

ب) $\frac{1}{2}(\sqrt{2}-\sqrt{3})(\sqrt{2}+\sqrt{3})\frac{1}{2} \Rightarrow \frac{1}{4}(2-3) = -\frac{1}{4}$ ✓ ①

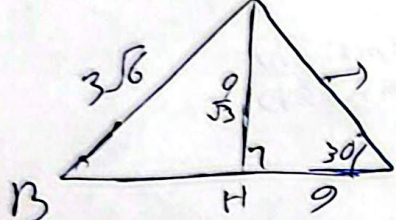
ج) $\frac{1 + 3 \tan^2 210^\circ}{4 \cos^2 330^\circ + 2 \cos^2 225^\circ} = \frac{2}{2} = 1$ $\frac{1 + 4\left(\frac{\sqrt{3}}{4}\right)^2}{4\left(\frac{\sqrt{3}}{4}\right)^2 + 4\left(-\frac{\sqrt{2}}{4}\right)^2} = \frac{1+1}{4+1} = \frac{2}{5} = \frac{1}{\frac{5}{2}}$



$\frac{\sqrt{2}}{2} = \frac{2\sqrt{3}}{2} = \sqrt{3}$ $\frac{\sqrt{3}}{2\sqrt{3}} = \frac{1}{2} = \sin \alpha$ HC = P (الف) $\alpha = 30^\circ$

HC = $\cos \alpha \times 2\sqrt{3} \Rightarrow \frac{\sqrt{3}}{2} \times 2\sqrt{3} = 3$ ✓

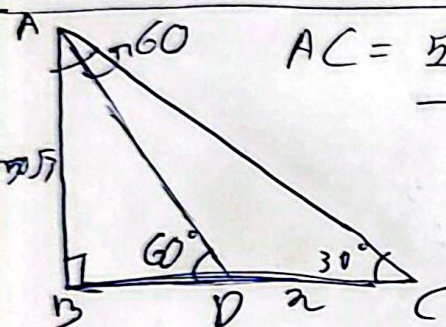
$\hat{B} = ?$ ②



$\frac{9}{\frac{1}{2}} = \frac{18}{\sqrt{3}}$

AH = $\frac{18}{\sqrt{3}} \times \frac{1}{2} = \frac{9}{\sqrt{3}}$

$\sin \hat{B} = \frac{9}{\frac{9}{\sqrt{3}}} = \frac{3\sqrt{3}}{3} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \Rightarrow \hat{B} = 45^\circ$ ✓

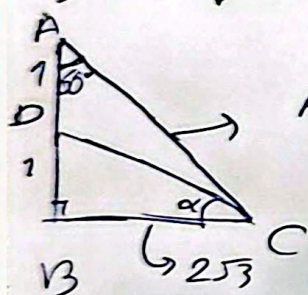


AC = $\frac{50\sqrt{3}}{\frac{1}{2}} = 100\sqrt{3}$ BC = $\frac{100\sqrt{3} \times \sqrt{3}}{2} = 150$ n = ? (ج) -3

AD = $\frac{50\sqrt{3}}{\frac{1}{2}} = 100 \Rightarrow BD = 100 \times \frac{1}{2} = 50$

n = 150 - 50 = 100 ✓

④ ۷۵۵



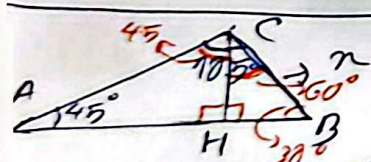
AC = $\frac{2}{\cos 60^\circ} = 4$ $\tan \alpha = \frac{1}{2\sqrt{3}} = \frac{\sqrt{2}}{12} = \frac{2\sqrt{3}}{12} = \frac{\sqrt{3}}{6}$ $\sin \alpha = ?$ (د)

BC = 2*sqrt(3)

$1 + \cot^2 \alpha = \frac{1}{\sin^2 \alpha} \Rightarrow 1 + \left(\frac{6}{\sqrt{3}}\right)^2 = \frac{1}{\sin^2 \alpha} \Rightarrow 1 + \frac{36}{3} = \frac{1}{\sin^2 \alpha}$

$13 = \frac{1}{\sin^2 \alpha} \Rightarrow \sin^2 \alpha = \frac{1}{13} \Rightarrow \sin \alpha = \frac{1}{\sqrt{13}}$

$\sin \alpha = \frac{1}{\sqrt{13}}$



CH = $\frac{n}{2} \Rightarrow CA = \frac{n}{\frac{1}{\sqrt{2}}} = \frac{n}{\sqrt{2}} = \frac{\sqrt{2}n}{2}$

AH = $\frac{n}{2}$ BH = $\frac{\sqrt{3}n}{2}$

AB = AH + BH = $\left(\frac{1+\sqrt{3}}{2}\right)n$

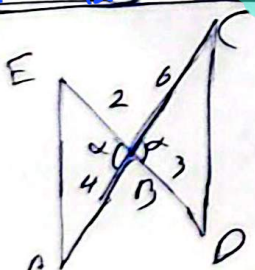
$\frac{AB}{AC} = ?$ -4

$\frac{AB}{AC} = \frac{\left(\frac{1+\sqrt{3}}{2}\right)n}{\left(\frac{\sqrt{3}}{2}\right)n} = \frac{1+\sqrt{3}}{\sqrt{3}} = \frac{4\sqrt{3}}{\sqrt{2}}$

$\frac{AB}{AC} = \frac{n(\sqrt{3}+\sqrt{3})}{n} = \frac{\sqrt{3}+\sqrt{3}}{1} = 2\sqrt{3}$

$\tan \alpha = \frac{BH}{AH} = \frac{\frac{\sqrt{3}n}{2}}{\frac{n}{2}} = \sqrt{3} \Rightarrow \alpha = 60^\circ$

$AB = BH + AH = \frac{2\sqrt{3}}{1} + \frac{2\sqrt{3}}{1} = 4\sqrt{3}$



$S_{ABE} = \frac{1}{2} \times 2 \times 4 \times \sin \alpha$

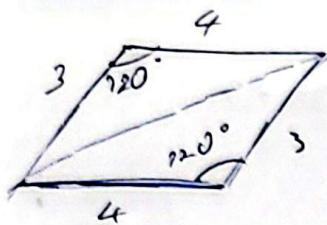
$\alpha = \alpha \Rightarrow \frac{S_{ABE}}{S_{BCD}} = \frac{\frac{1}{2} \times 2 \times 4 \times \sin \alpha}{\frac{1}{2} \times 3 \times 6 \times \sin \alpha} = \frac{4}{9}$

$S_{BCD} = \frac{1}{2} \times 3 \times 6 \times \sin \alpha$

$\frac{S_{ABE}}{S_{BCD}} = ?$ -5

$\frac{4}{9}$ ✓

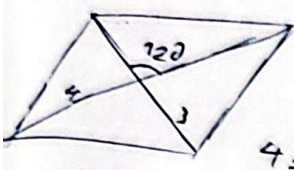
⑤



$$S = \left(\frac{1}{2} \times \sin 120^\circ \times 3 \times 4 \right) 2 = 6\sqrt{3}$$

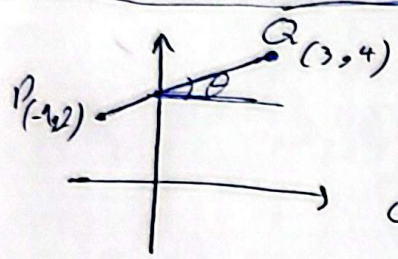
5 عاودا عاودا = 20 - 8

(الف)



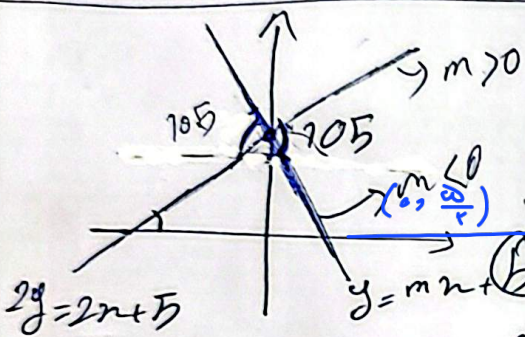
$$S = \frac{1}{2} a a b \sin \alpha = \frac{1}{2} (4 \times 4) \sin 120 = 8\sqrt{3}$$

4=a 3=b



$$\tan \theta = \frac{\Delta y}{\Delta x} = \frac{4-2}{3-(-2)} = \frac{2}{5}$$

$$1 + \tan^2 \alpha = \frac{1}{\cos^2 \alpha} \Rightarrow 1 + \frac{4}{25} = \frac{1}{\cos^2 \alpha} \Rightarrow \cos^2 \alpha = \frac{25}{29} \Rightarrow \cos \alpha = \frac{5}{\sqrt{29}}$$



$$y = kx + a \rightarrow m = 1 \rightarrow \tan \theta = 1 \rightarrow \theta = 45^\circ$$

$$\rightarrow y = mx + b \rightarrow m = \tan \theta = -\sqrt{3}$$

$$mb = ?$$

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

$$mx + \frac{5}{2} = 0 \Rightarrow mx = -\frac{5}{2}$$

$$m = -1$$

$$x = \frac{5}{2}$$

$$mb = -1 \times \frac{5}{2} = -\frac{5}{2}$$

$$mb = \frac{a}{r} \times (-\sqrt{r}) = -\frac{a\sqrt{r}}{r}$$

$$f(x) = \cos(\pi + x) + \sin(\frac{\pi}{2} - x) \cdot \tan(\frac{3\pi}{2} + x) \Rightarrow -\left(\frac{1}{\sqrt{3}+1}\right) = \left(-\frac{1}{\sqrt{3}+1}\right)$$

$$f(\frac{5\pi}{6}) = ?$$

180 0 90

$$f(x) = -\cos x + \cos x + \cot x$$

$$\cos(180+150) = -1 \times -\frac{\sqrt{3}}{2} = \frac{\sqrt{3}}{2}$$

$$\sin(90-150) = 1 \times -\frac{\sqrt{3}}{2} = -\frac{\sqrt{3}}{2}$$

$$f(x) = \cot x \rightarrow f(\frac{5\pi}{6}) = \cot(\frac{5\pi}{6}) = -\sqrt{3}$$

$$\tan(270+150) = \frac{\frac{1}{\sqrt{3}}}{1 - (-\frac{1}{\sqrt{3}}) + \frac{1}{\sqrt{3}}} = \frac{\frac{1}{\sqrt{3}}}{\frac{2\sqrt{3}+1}{\sqrt{3}}} = \frac{1}{2\sqrt{3}+1}$$

$$\frac{\sin(\frac{17\pi}{2} + x) + \cos(\frac{15\pi}{2} + x)}{\cos(3\pi + x) - \sin(6\pi - x)}$$

$$\frac{\sin(\frac{17\pi}{2} + x) + \cos(\frac{15\pi}{2} + x)}{\cos(3\pi + x) - \sin(6\pi - x)} = \frac{\cos x + \sin x}{-\cos x + \sin x} = -1$$

$$\frac{17\pi}{2} = 90^\circ$$

$$\frac{15\pi}{2} = 270^\circ$$

$$6\pi = 360$$

$$3\pi = 180$$

$$= -1$$

1,0