

$$\underbrace{\tan 135}_{-1} + \underbrace{\sin 135}_{-\frac{\sqrt{2}}{2}} + \underbrace{\cos 225}_{-\frac{\sqrt{2}}{2}} = -1 - \sqrt{2}$$

(الف)

(ب)

$$\underbrace{\tan 150}_{-\frac{\sqrt{3}}{3}} + \underbrace{\sin 200}_{-\frac{\sqrt{3}}{2}} + \underbrace{\cos 240}_{-\frac{1}{2}} = \frac{-\frac{5\sqrt{3}}{2} - 3}{6}$$

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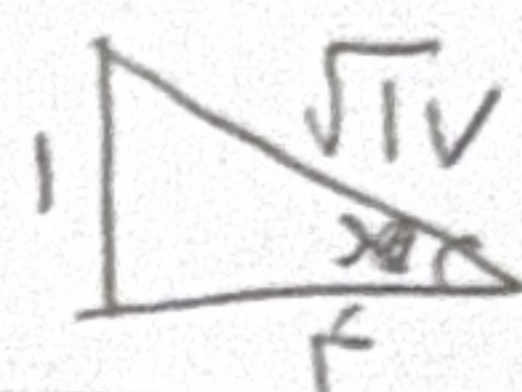
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$$\frac{3 \times \frac{4}{\sqrt{17}} - \frac{1}{\sqrt{17}}}{\frac{4}{\sqrt{17}} + \frac{1}{\sqrt{17}}} = \frac{\frac{11}{\sqrt{17}}}{\frac{5}{\sqrt{17}}} = \frac{11}{5}$$

$$\sin_x = \frac{\text{مقابل}}{\text{وتر}} = \frac{1}{\sqrt{17}}$$

$$\cos_x = \frac{\text{مجاور}}{\text{وتر}} = \frac{4}{\sqrt{17}}$$

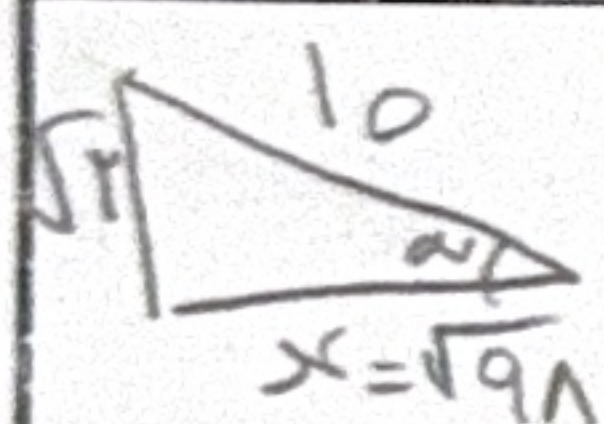
$$\cot_x = \frac{\text{مجاور}}{\text{مقابل}} = 4$$



$$\sin \alpha = 2 \cos \alpha \rightarrow \sin^2 \alpha = 4 \cos^2 \alpha$$

$$\sin^2 \alpha + \cos^2 \alpha = 1 \rightarrow 4 \cos^2 \alpha + \cos^2 \alpha = 1 \rightarrow 5 \cos^2 \alpha = 1$$

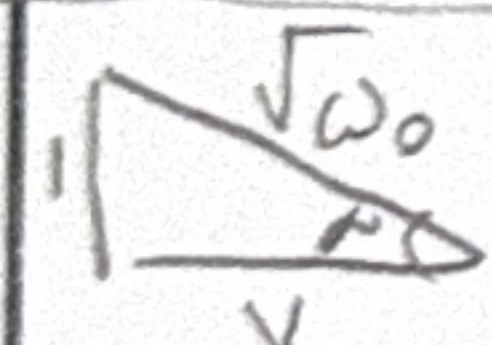
$$\cos^2 \alpha = \frac{1}{5} \rightarrow \cos \alpha = \pm \frac{1}{\sqrt{5}}$$



$$\cos \alpha = \frac{\sqrt{91}}{10} = \frac{-\sqrt{91}}{10}$$

$$\cos(135 + \alpha) = \cos 135 \cos \alpha - \sin 135 \sin \alpha$$

$$= \left(-\frac{\sqrt{2}}{2} \times \frac{-\sqrt{91}}{10}\right) - \left(\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{10}\right) = \frac{\sqrt{91}}{10} - \frac{1}{10} = \frac{4}{10}$$



$$\sin \alpha = \frac{1}{\sqrt{50}}$$

$$\sin(225 + \alpha) = \sin 225 \cos \alpha + \sin \alpha \cos 225$$

$$= \left(-\frac{\sqrt{2}}{2} \times \frac{\sqrt{49}}{\sqrt{50}}\right) + \left(\frac{\sqrt{2}}{2} \times \frac{1}{\sqrt{50}}\right) = \frac{-\sqrt{49}}{10} + \frac{1}{10} = \frac{-11}{10}$$

$$\sin^2 x + \cos^2 x = 1 \rightarrow -\sin^2 x - \cos^2 x = -1$$

$$\cos^2 x = \frac{4}{9}$$

$$2 \sin^2 x - \cos^2 x - \sin^2 x - \cos^2 x = -1 + \frac{4}{9} = \frac{1}{9} = \sin^2 x$$

$$\tan^2 x = \frac{\sin^2 x}{\cos^2 x} = \frac{\frac{1}{9}}{\frac{4}{9}} = \frac{1}{4}$$

$$\frac{1}{2} \times 4 \times \sqrt{3} \times \sin \alpha = \frac{9}{2} \rightarrow \sin \alpha = \frac{\frac{9}{2}}{\frac{4 \times \sqrt{3}}{2}} = \frac{3}{2 \times \sqrt{3}}$$

$40^\circ, 120^\circ \leftarrow \alpha$
 $120 - 40 = 80$

$$\omega F = 2x \times 3x \times \sin 120^\circ = 4x \times 3x \times \frac{1}{2} \rightarrow x^2 = 18 \rightarrow x = 3\sqrt{2}$$

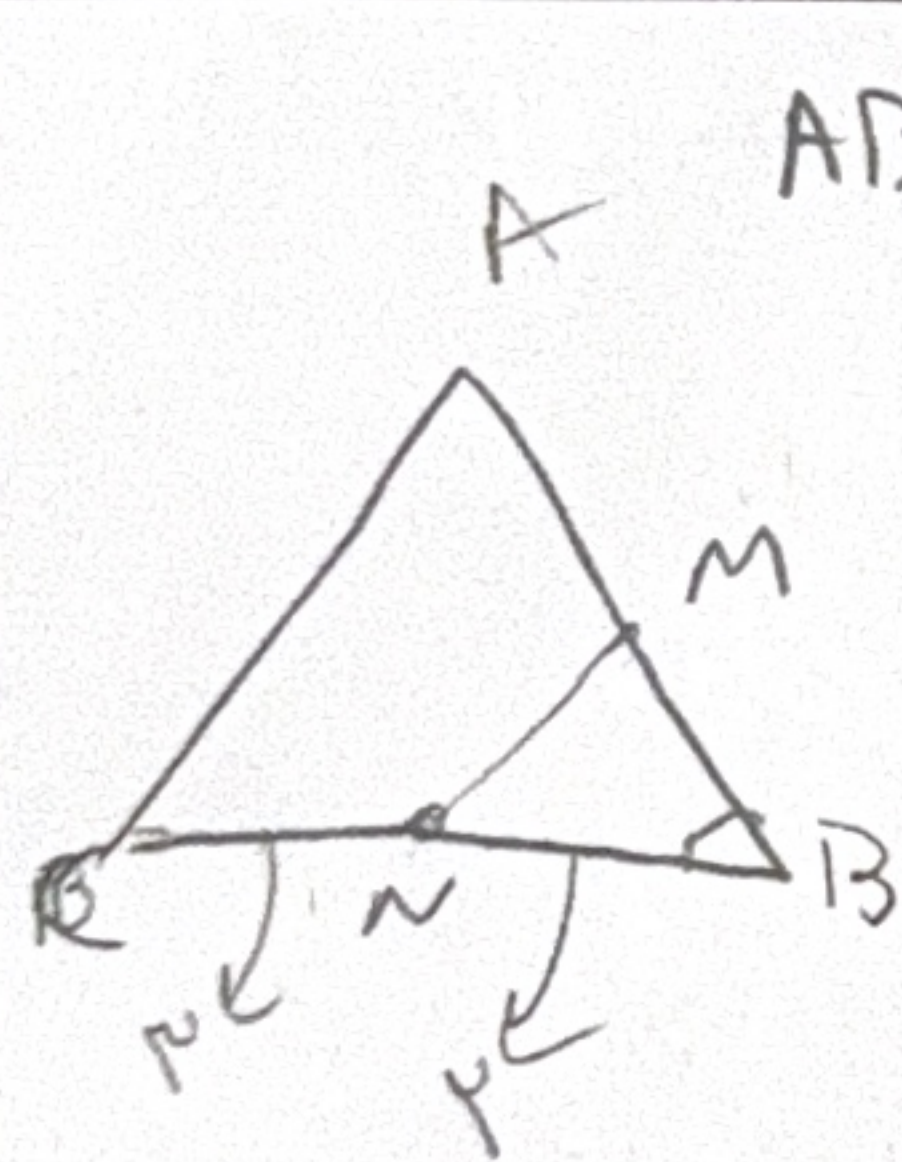
$2x = 6\sqrt{2} \quad 3x = 9\sqrt{2} \rightarrow \text{مساحت} = (9\sqrt{2} + 6\sqrt{2}) \times 2 = 30\sqrt{2}$

$$AB(\text{مساحت}) = \frac{1}{2} \times 5 \times V \times \sin A = 1V, 5 \sin A$$

$$ADE(\text{مساحت}) = \frac{1}{2} \times V \times F \times \sin A = 1F \sin A$$

$$\frac{1}{2} \times 5 \sin A = 1, V \times 5 \rightarrow \sin A = \frac{1}{5} \rightarrow A = 30^\circ$$

$$\tan 30^\circ = \frac{\sqrt{3}}{3}$$



$$AB(\text{مساحت}) = 3 \times BM(\text{مساحت})$$

$$\frac{1}{2} \times 5 \times AB \times \sin B = 3 \times \frac{1}{2} \times BM \times \sin B$$

$$\omega AB = 3 BM$$

$$\omega BM + \omega AM = 4 BM \rightarrow \omega AM = 1 BM$$

$$\frac{BM}{AM} = \frac{1}{1} = 1$$

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

با علامتی باشد
تا دو طرف تناسلی برقرار باشد

$$\frac{|\sin \alpha|}{\cos \alpha} = -\tan \rightarrow \sin \alpha < 0 \rightarrow \text{ناحیه ۳}$$

ناحیه ۲ و ۳
 $\cos \alpha < 0 \rightarrow$

کمان α در ناحیه ۳ قرار دارد چون $0 > \sin \alpha$ و $0 > \cos \alpha$