

مسئله ۱

$$\sin(120^\circ + 30^\circ) (\cos 30^\circ - \cos 120^\circ)$$

$$+ \frac{r_1}{r} + - \frac{r_2}{r} = \frac{r_1 - r_2}{r} + \frac{r_1}{r} \Rightarrow \frac{r_1}{r} = \frac{r_1 + r_2}{r}$$

$$\frac{(r_1 - r_2)(r_1 + r_2)}{r} = \frac{r_1 - r_2}{r} \Rightarrow \frac{r_1 - r_2}{r} = \frac{r_1 - r_2}{r}$$

$$1 + 3 \tan^2 10^\circ = 4 \Rightarrow 1 + 3 \times \frac{1}{3} = 2$$

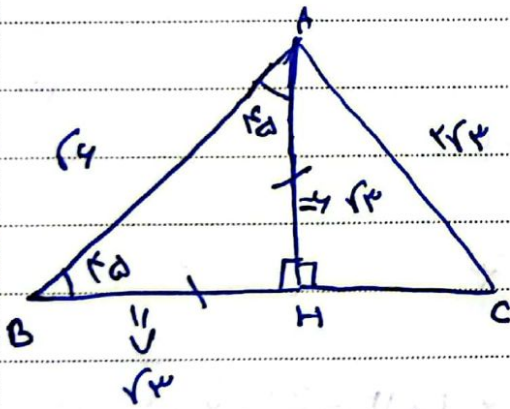
$$r \cos^2 30^\circ + r \cos^2 20^\circ$$

$$r + 1 = r$$

$$\frac{r}{r} = \frac{1}{1}$$

$$\left(\frac{r}{r}\right)^2 = \frac{r}{r} \Rightarrow \frac{r}{r} = 1 \Rightarrow \left(\frac{r}{r}\right)^2 = \frac{r}{r} \Rightarrow \frac{r}{r} = 1$$

مسئله ۲



$$a^2 + a^2 = 9$$

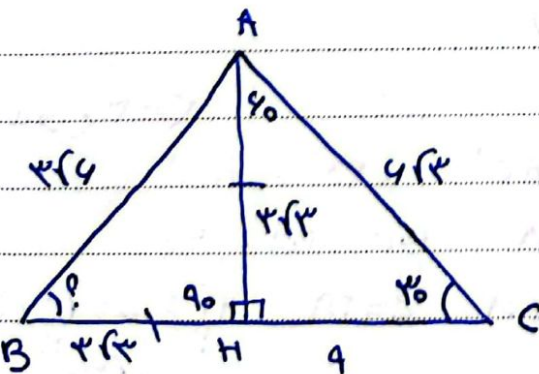
$$2a^2 = 9 \Rightarrow a^2 = \frac{9}{2} \Rightarrow a = \frac{3}{\sqrt{2}}$$

$$(AH)^2 + (HC)^2 = (AC)^2$$

$$(AC)^2 - (AH)^2 = (HC)^2$$

$$(2r)^2 - r^2 = 12 - 3 = 9$$

$$(HC)^2 = 9 \Rightarrow HC = 3$$



$$\frac{r}{r} a = 9 \Rightarrow a = 9 \times \frac{r}{r}$$

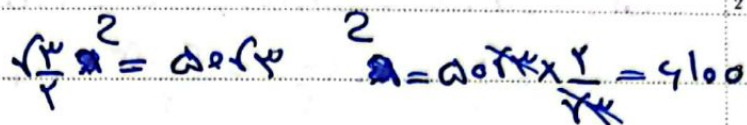
$$a = 1 \times \frac{r}{r} = \frac{r}{r} = 1$$

$$4r \times \frac{1}{r} = 3r$$

$$(4r)^2 - (3r)^2 = 9 \Rightarrow 16r^2 - 9r^2 = 9 \Rightarrow 7r^2 = 9 \Rightarrow r = \frac{3}{\sqrt{7}}$$

$$= 4 \Rightarrow \hat{B} = 40^\circ$$

Arman



$$\sqrt{100} = \sqrt{10 \times 10} = 10 \times 10 = 10$$

$$(100\sqrt{3})^2 - (50\sqrt{3})^2 = 4 \quad \text{الف)}$$

$$3000 - 750 = 2250$$

$$120 - 20 = 100$$

$x = 100$



$$\sqrt{x} \times x^2 = x\sqrt{x}$$

$$1 + (y(r))^2 = 2^2 = 4 \quad 1 + y^2 = 2^2 = 4 \quad \boxed{y = \sqrt{3}}$$

$$\sin a = 4 \frac{\text{مقابلها}}{\text{وترها}} = 4 \frac{1}{\sqrt{17}} = 4 \frac{\sqrt{17}}{17}$$



$$AC = 5 \text{ A} \quad 10 \text{ A} - 5 \text{ A} = 5 \text{ A}$$

$$\frac{1}{r} z = a \quad z = ra \quad \sqrt{\frac{r}{r}} z = 4 \sqrt{\frac{r}{r}} \times ra$$

$$AC = r \alpha$$

$$AB = x + \sqrt{4}x$$

$$\frac{AB}{AC} = \frac{x(1+r)^t}{rx} = \frac{1+r^t}{r}$$

$$f(x) = \cos(\pi + x) + \sin(\frac{\pi}{4} - x) - \tan(\frac{3\pi}{4} + x)$$

$$-\cancel{\cos x} + \cancel{\cos x} - \cot x$$

$$+ \cot x$$

$$f(\frac{5\pi}{4}) = \cot \frac{5\pi}{4} = -\frac{r_y}{r_x}$$

$$\cot \frac{5\pi}{4} = \frac{\cos \frac{5\pi}{4}}{\sin \frac{5\pi}{4}} = \frac{-\frac{\sqrt{2}}{2}}{-\frac{\sqrt{2}}{2}} = 1$$

$$\sin(\frac{11\pi}{4} + x) + \cos(\frac{12\pi}{4} - x)$$

$$\cos(3\pi + x) - \sin(4\pi - x)$$

$$\frac{11\pi}{4} = 4 \times \frac{\pi}{4} + \frac{3\pi}{4}$$

$$+ \cos x + - \sin$$

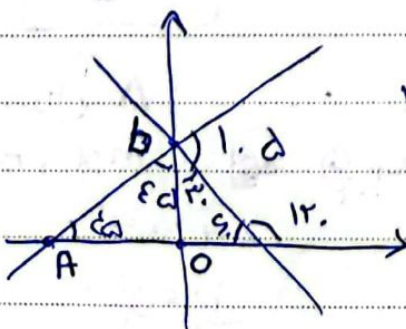
$$= \boxed{-1}$$

$$- \cos + \sin$$

$$\frac{10\pi}{4} = 4 \times \frac{\pi}{4} + \frac{2\pi}{4}$$

$$3\pi = 4 \times \frac{3\pi}{4} + \pi$$

$$9\pi = 0 + 9\pi$$



$$mb = ? \quad -r_y x - \frac{a}{r} = -a \frac{r_y}{r}$$

$$m = \tan \alpha \quad y = -r_y x + b$$

$$m = r_y$$

$$r_y = r_x + a$$

$$y = x + \frac{a}{r}$$

$$b = AO = -\frac{a}{r} \rightarrow b = +\frac{a}{r}$$

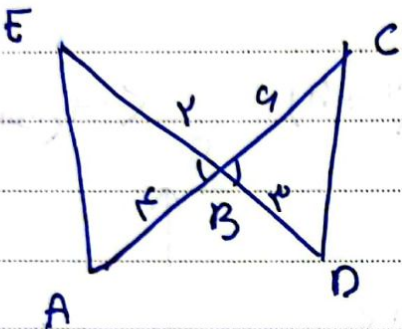
$$m = 1 \quad \tan \alpha = 1 \quad \alpha = 45^\circ$$

Arman

Subject:

Year: Month: Day:

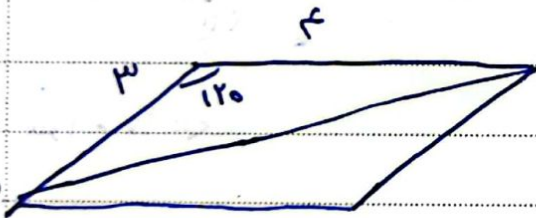
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سؤال ٤ <=

$$\frac{ABE}{BCD} = \frac{4 \times 3 \times \frac{1}{2} \times \sin \hat{B}}{6 \times 9 \times \frac{1}{2} \times \sin \hat{B}} = \frac{4}{18}$$

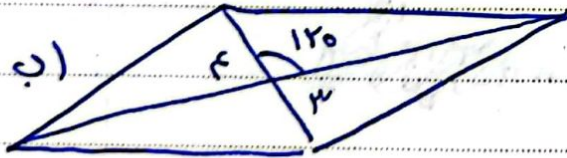
$$\frac{4}{9} \times \frac{A}{A} = \frac{4}{9}$$



سؤال ٤ <=

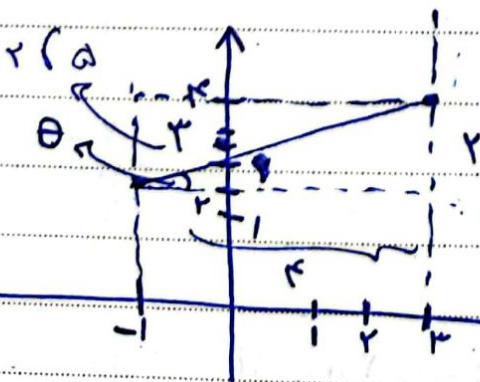
$$12 \times 4 \times \frac{1}{2} \times \sin 120^\circ \times \frac{1}{2} = 4 \times 12 \times \frac{1}{2}$$

$$12 \times 4 \times \frac{1}{2} = 4 \times 12$$



سؤال ٤ <=

$$12 \times (4 \times \sin 120^\circ \times \frac{1}{2} \times \frac{1}{2}) = \frac{12}{2} \times 12 = 12 \times 6$$



$$P = (-16, 12)$$

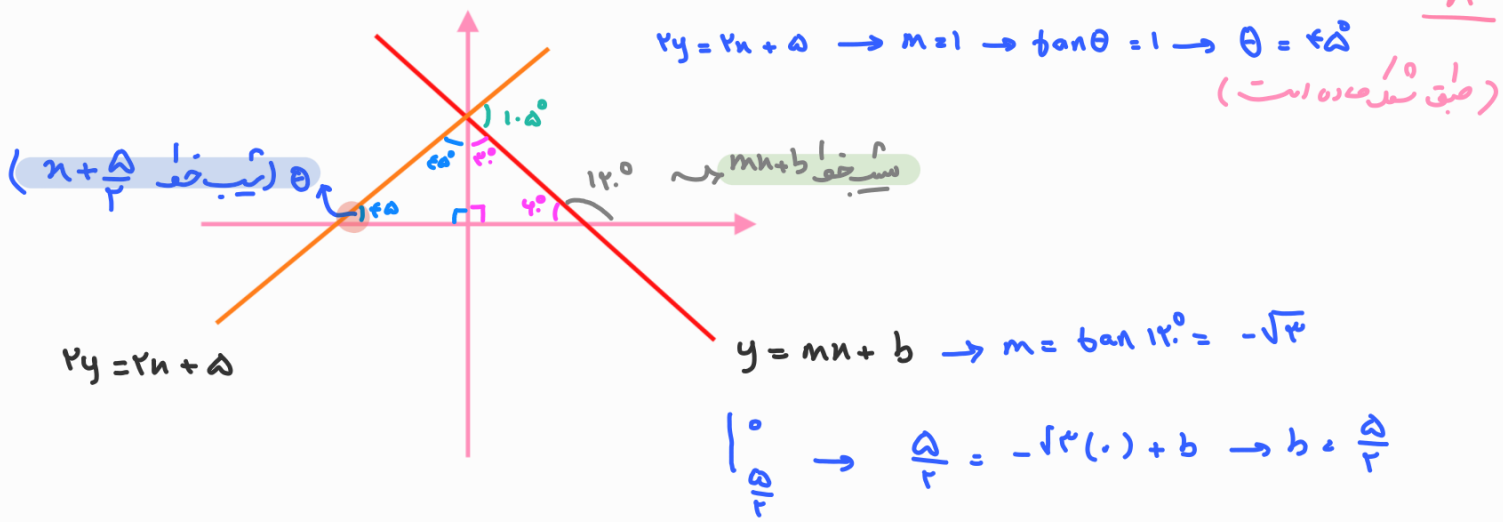
$$Q = (16, 12)$$

$$\cos \theta = \frac{r \cos \theta}{r} = \frac{16}{20} = \frac{4}{5}$$

$$r^2 + r^2 = 16 + 144 = 160$$

$$r = 4\sqrt{10}$$

$$\frac{r \cos \theta}{\omega}$$



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

$$\underbrace{(n+n)}_{-C \cdot \sin} + \underbrace{\sin\left(\frac{\pi}{4} - n\right)}_{C \sin} - \tan\left(\frac{\pi}{4} + n\right) = \cot n$$

$$f(n) = \cot n \rightarrow f\left(\frac{\omega \pi}{4}\right) = \cot\left(\frac{\omega \pi}{4}\right) = -\sqrt{3}$$