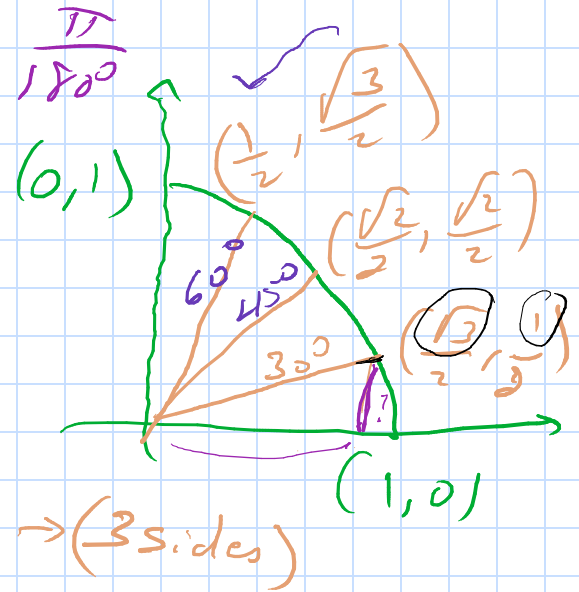


$$\left. \begin{aligned} S &= r\theta \\ A &= \frac{1}{2} r^2 \theta \end{aligned} \right\}$$

$$\theta \text{ rad} : \frac{\pi}{180^\circ}$$



$$\frac{\sin A}{a} = \frac{\sin B}{b} \quad \left\{ \begin{array}{l} 2 \text{ angles} \\ 1 \text{ side} \end{array} \right.$$

$$a = \sqrt{b^2 + c^2 - 2bc \cos A}$$

$$A = \cos^{-1} \left(\frac{b^2 + c^2 - a^2}{2bc} \right) \rightarrow (3 \text{ sides})$$

$$\text{Area} = \frac{1}{2} ab \sin C$$

Appl: $\left\{ \begin{array}{l} \text{hyp} \rightarrow \left\{ \begin{array}{l} \text{sine (opp)} \\ \text{cosine (adj)} \end{array} \right. \\ \text{no-hyp} \rightarrow \text{tangent} \end{array} \right.$

$a = \sqrt{\quad} \Rightarrow 3 \text{ letters (1 angle)}$

$$\text{as } h = \frac{x \tan \tan}{\tan - \tan}$$

Ex $r = 8 \text{ (m)}$ $S?$ $\theta = 45^\circ = \frac{\pi}{4}$ ✓

$$\begin{aligned} S &= r\theta \\ &= 8 \frac{\pi}{4} \end{aligned}$$

$$= 2\pi \text{ m}$$

leave space

$$r = 8, \text{ Area?}$$

$$\theta = 60^\circ = \frac{\pi}{3}$$

$$\text{Area} = \frac{1}{2} r^2 \theta$$

$$= \frac{1}{2} 64 \frac{\pi}{3}$$

$$= \frac{32\pi}{3} \text{ m}^2$$

$$(-8, 6)$$

$$\textcircled{2} (-4, 3) \rightarrow 5$$

$$\sin \theta = \frac{3}{5} \quad \cos \theta = -\frac{4}{5} \quad \tan \theta = -\frac{3}{4}$$

$$\csc \theta = \frac{5}{3} \quad \sec \theta = -\frac{5}{4} \quad \cot \theta = -\frac{4}{3}$$

$$\sin \theta = \frac{5}{13} \quad \text{Q II } (-12, 5) \rightarrow 13$$

$$\sin \theta = \frac{5}{13} \quad \cos \theta = -\frac{12}{13} \quad \tan \theta = -\frac{5}{12}$$

$$\csc \theta = \frac{13}{5} \quad \sec \theta = -\frac{13}{12} \quad \cot \theta = -\frac{12}{5}$$

$$A = 60^\circ \quad a = 10 \quad \underline{b = 40}$$

$$\sin B = \frac{40 \sin 60^\circ}{10}$$

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

$$= 2\sqrt{3} > 1$$

\therefore No triangle

$$\frac{\sin B}{b} = \frac{\sin A}{a}$$

Therefore, \therefore

$$\text{Area?} \quad a = 4 \quad b = 3 \quad C = 30^\circ$$

$$\text{Area} = \frac{1}{2} ab \sin C$$

$$= \frac{1}{2} (4) (3) \sin 30^\circ$$

$$= 6 \cdot \frac{1}{2} = 3 \text{ unit}^2$$

$$a? \quad b=30 \quad c=20 \quad A=60^\circ$$

$$a = \sqrt{b^2 + c^2 - 2bc \cos A}$$

$$= \sqrt{900 + 400 - 2(30)(20) \cos 60^\circ}$$

$$= 10 \sqrt{13 - 12 \frac{1}{2}}$$

$$= 10 \sqrt{7} \quad \text{unit}$$

(?)

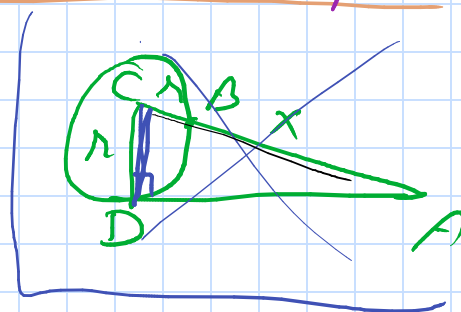
Q

$$x? \quad h=8, \quad C=30^\circ$$

$$\cos 30^\circ = \frac{8}{x+8} = \frac{\sqrt{3}}{2}$$

$$\frac{\sqrt{3}}{\sqrt{3}} \cdot \frac{16}{\sqrt{3}} = x+8$$

$$x = \frac{16\sqrt{3}}{3} - 8$$

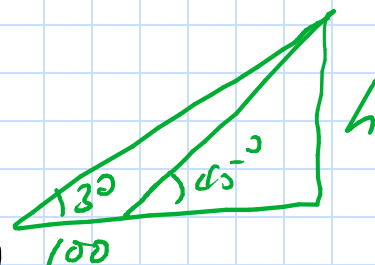


$$h = \frac{100 \tan 45^\circ \tan 30^\circ}{\tan 45^\circ - \tan 30^\circ}$$

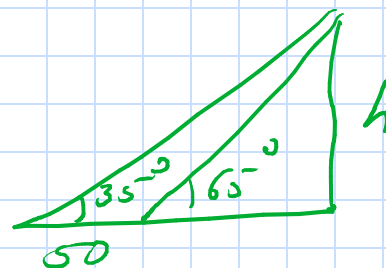
$$= \frac{100 \cdot \frac{1}{\sqrt{3}}}{1 - \frac{1}{\sqrt{3}}}$$

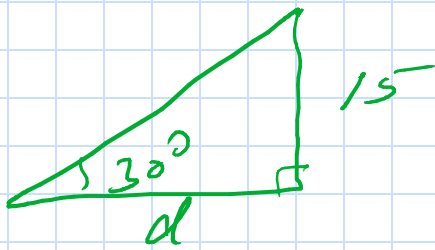
$$= \frac{100}{\sqrt{3} - 1}$$

$$\frac{\frac{100}{\sqrt{3}}}{\frac{\sqrt{3}-1}{\sqrt{3}}}$$



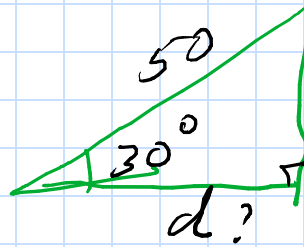
$$h = \frac{50 \tan 65^\circ \tan 35^\circ}{\tan 65^\circ - \tan 35^\circ}$$





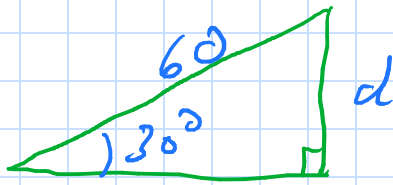
$$\tan 30^\circ = \frac{15}{d} = \frac{1}{\sqrt{3}}$$

$$\underline{d = 15\sqrt{3}}$$



$$\cos 30^\circ = \frac{d}{50} = \frac{\sqrt{3}}{2}$$

$$\underline{d = 25\sqrt{3}}$$



$$\sin 30^\circ = \frac{d}{60} = \frac{1}{2}$$

$$\underline{d = 30}$$

$$d = \sqrt{40^2}$$

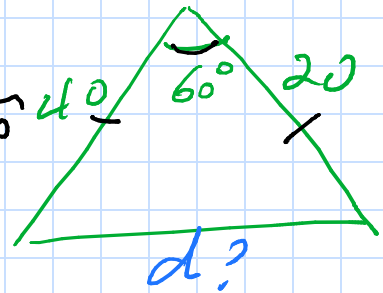
$$= \sqrt{1600 + 400 - 2(40)(20)\cos 60^\circ}$$

$$= 10 \sqrt{20 - 16 \frac{1}{2}}$$

$$= 10 \sqrt{20 - 8}$$

$$= 10 \sqrt{12}$$

$$\underline{= 20\sqrt{3}}$$



$$\textcircled{40\sqrt{3}}$$

any given triangle, do not assume right
rang

~~sin =~~

$$\sin(\text{angle}) = \#$$

$$-1 \leq \sin \leq 1$$

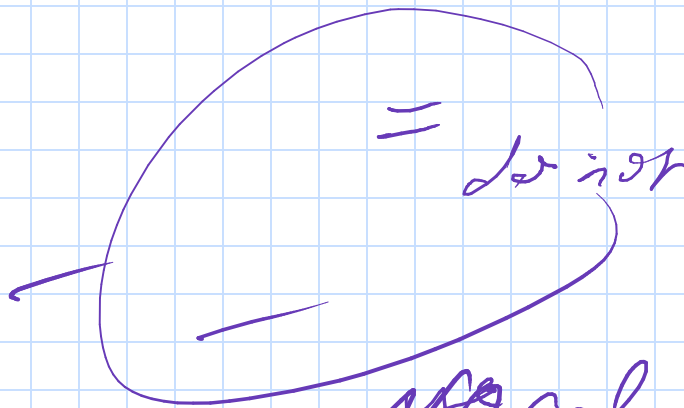
$$-1 \leq \cos \leq 1$$

~~0 sin~~

$\sin \theta =$

1/1

$$\begin{aligned} &= \\ &= \text{a} \\ &= \text{b} \end{aligned}$$



no calculation
an exam (itself)

use scratch