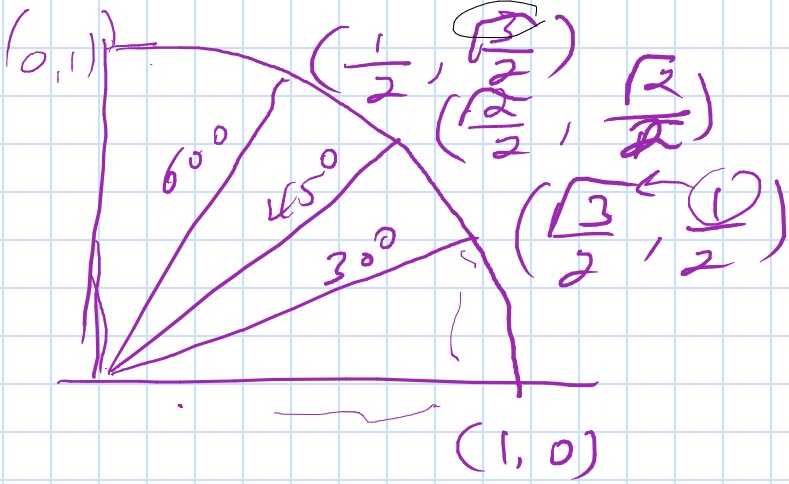


$\tan 30° = \frac{1}{\sqrt{3}} = \frac{y}{x}$

$s = r\theta$, $A = \frac{1}{2} r^2 \theta$ (θ rad) $x^\circ \frac{\pi}{180^\circ}$

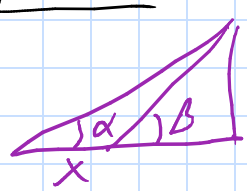
$\frac{\sin A}{a} = \frac{\sin B}{b}$] 2 letters same or 2 angles $\frac{A}{a}\ \frac{B}{b}\ \frac{C}{c}$

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

$a = \sqrt{b^2 + c^2 - 2bc \cos A}$ } 3 letters (1 angle)

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

apart



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

{ hyp → { adj → cosine
opp → sine
no hyp → tangent.

1/ $r = 8\ m$ $\theta = 30^\circ = \frac{\pi}{6}$ s?

$$s = r\theta$$
$$= 8\,\frac{\pi}{6}$$
$$= \frac{4\pi}{3}\ m$$

2/ $r = 12$ $\theta = 45^\circ = \frac{\pi}{4}$

$$\text{Area} = \frac{1}{2} r^2 \theta$$
$$= \frac{1}{2}\,(144)\,\frac{\pi}{4}$$
$$= 18\pi\ \text{unit}^2$$

3/ $\sin\theta = -\frac{12}{13}$ $\theta \in$ QIII

$(-5, -12) \rightarrow 13$

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

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

4/ $(6, -8)$ ② $(3, -4) \rightarrow 5$

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

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

5) $A = 60^\circ \quad a = 20 \quad b = 50$

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

$$\sin B = \frac{50 \sin 60^\circ}{20}$$

$$= \frac{5}{2} \cdot \frac{\sqrt{3}}{2}$$

$$= \frac{5\sqrt{3}}{4} > 1$$

$\therefore$ No triangle.

6) $A = 45^\circ, \quad b = 5 \quad c = 4$

$$\text{Area} = \frac{1}{2} bc \sin A$$

$$= \frac{1}{2}(5)(4) \sin 45^\circ$$

$$= 10 \cdot \frac{\sqrt{2}}{2}$$

$$= 5\sqrt{2} \text{ unit}^2$$

7) a ? $\quad b = 20 \quad c = 10 \quad A = 30^\circ$

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

$$= \sqrt{400 + 100 - 2(20)(10)\cos 30^\circ}$$

$$= 10\sqrt{5 - 4 \cdot \frac{1}{2}}$$

$$= 10\sqrt{3}$$

8/ $C = 60^\circ \quad h = 12$

$$\cos 60^\circ = \frac{12}{x+12} = \frac{1}{2}$$

$$x + 12 = 24$$

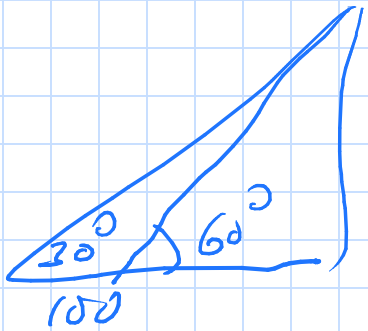
$$x = 12$$

9/ $$h = \frac{100 \tan 60^\circ \tan 30^\circ}{\tan 60^\circ - \tan 30^\circ}$$

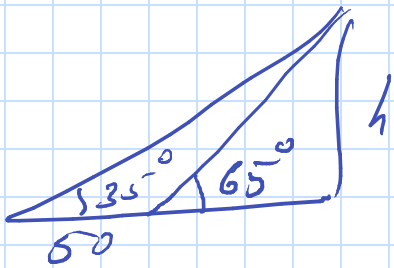
$$= \frac{100 \cdot \sqrt{3} \cdot \frac{1}{\sqrt{3}}}{\sqrt{3} - \frac{1}{\sqrt{3}}}$$

$$= \frac{100}{\frac{2}{\sqrt{3}}}$$

$$= 50\sqrt{3}$$

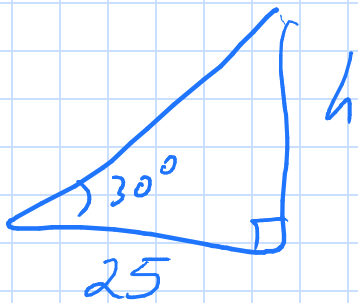


10/ $$h = \frac{50 \tan 65^\circ \tan 35^\circ}{\tan 65^\circ - \tan 35^\circ}$$

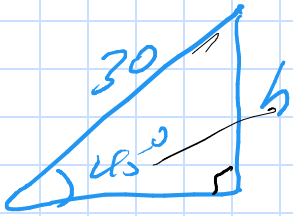


11/ $$\tan 30^\circ = \frac{d}{25} = \frac{1}{\sqrt{3}}$$

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

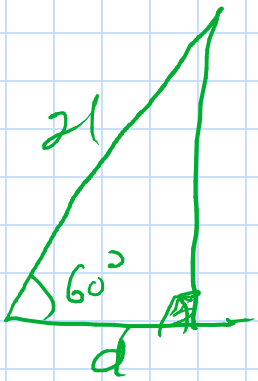


$\sin 45^\circ = \frac{h}{30} = \frac{\sqrt{2}}{2}$



$$h = 15\sqrt{2}$$

$\cos 60^\circ = \frac{d}{21} = \frac{1}{2}$



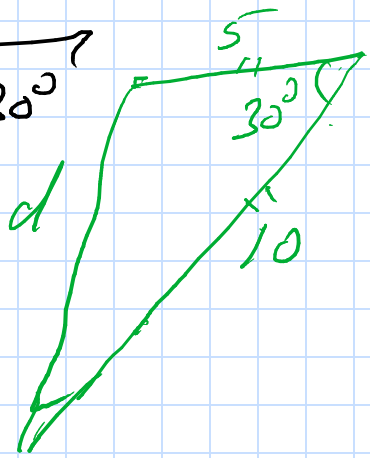
$$d = \frac{21}{2}$$

$$d = \sqrt{25 + 100 - 2(5)(10)\cos 30^\circ}$$

$$= \sqrt{125 - 100\frac{\sqrt{3}}{2}}$$

$$= \sqrt{125 - 50\sqrt{3}}$$

$$= 5\sqrt{5 - 2\sqrt{3}}$$



$\sqrt{\quad}$

$4 \rightarrow 2$

$9 \rightarrow 3$

$50 \rightarrow 25 \rightarrow$

θ sin 30° sin

sin 30 sin = $\frac{5}{6}$

sin 30° =

Trig. (angle) = 16.

Sin

left

=

=

a = √

=

↓

=