- $S = r\theta \cdot (rad)$
- $A = \frac{1}{2} r^2 \theta$ ◁
- $(x, y) \to r$

  $\sin \theta$ or $\cos \theta$

$$3, 4 \to 5 \rbrace$$
$$5, 12 \to 13 \rbrace$$
$$8, 15 \to 17$$

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

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

$$b c \qquad A$$

6.2
#19

$\overrightarrow{AB} + \overrightarrow{BC}$

$\tan \delta = \frac{6}{12} = \frac{1}{2}$, $\delta = \tan^{-1} \frac{1}{2}$

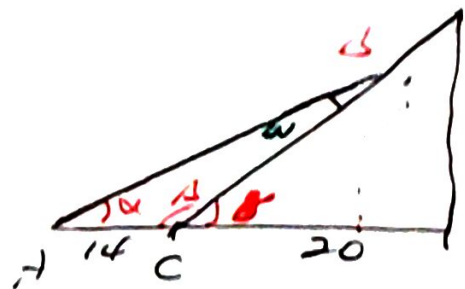$\tan \alpha = \frac{3}{12} = \frac{1}{4}$

$\alpha = \tan^{-1} \frac{1}{4}$

$\beta = 180^\circ - r$

$\quad = 180^\circ - \tan^{-1} \frac{1}{2} \rbrace$

$\omega = 180^\circ - \alpha - \beta$

$\quad = 180^\circ - \tan^{-1} \frac{1}{4} - 180^\circ + \tan^{-1} \frac{1}{2}$

$\quad = \tan^{-1} \frac{1}{2} - \tan^{-1} \frac{1}{4}$

$$\frac{AB}{\sin \beta} = \frac{14}{\sin \omega}$$

$$\overrightarrow{AB} = 14 \frac{\sin(180^\circ - \tan^{-1} \frac{1}{2})}{\sin(\tan^{-1} \frac{1}{2} - \tan^{-1} \frac{1}{4})}$$

$t = \frac{1}{2} r^2 \theta$

$\cos\theta = \dfrac{24}{25}$ $\theta \in \overline{IV}$

$(24, 7) \longrightarrow 25$

$\sin\theta = -\dfrac{7}{25}$ $\cos\theta = \dfrac{24}{25}$ $\tan\theta = -\dfrac{7}{24}$

$\csc\theta = -\dfrac{25}{7}$, $\sec\theta = \dfrac{25}{24}$ $\cot\theta = -\dfrac{24}{7}$

$(9, -12) \rightarrow 3$ $(3, -4) \rightarrow 5$

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

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

$r = 6$ in $\theta = 30° = \dfrac{\pi}{6}$

$S = r\theta$ $\cancel{S = r\theta \; 6 \; \frac{\pi}{6}}$

$= 6 \; \dfrac{\pi}{6}$

$= \pi$ in

$A = \dfrac{1}{2} r^2 \theta$

$= \dfrac{1}{2} \; 36^{\,6} \; \dfrac{\pi}{6}$

$= 3\pi$ in^2

6.0 #2   B = 34°   C = 82°   a = 5.6

$A = 180° - 34° - 82°$

$= 64°$

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

$b = \dfrac{5.6 \sin 34°}{\sin 64°}$

$c = \dfrac{5.6 \sin 82°}{\sin 64°}$

$b = 2$ $c = 6$ $B = 30°$

$\dfrac{\sin C}{6} = \dfrac{\sin 30°}{2}$

$\sin C = 3\left(\dfrac{1}{2}\right) > 1$

∴ No Triangle.