SM 121 LESSON 2 1/9/15/19/21/23/27/35/59/65 22 AUG 08

TRIGONOMETRY

(1) CONVERT 210° TO RADIANS

$$210\left(\frac{\pi}{180}\right) = \boxed{\frac{7\pi}{6}}$$

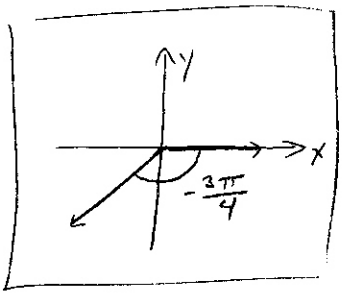
(9) CONVERT $\frac{5\pi}{12}$ RADIANS TO DEGREES

$$\frac{5\pi}{12}\left(\frac{180}{\pi}\right) = \boxed{75°}$$

(15) CIRCLE RADIUS 1.5m, FIND ANGLE OF ARC WITH LENGTH 1m

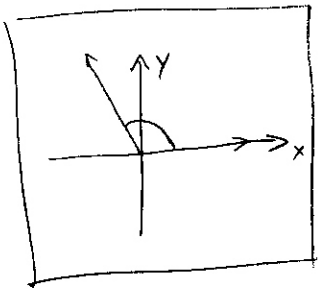
$$\theta = \frac{a}{r} = \frac{1}{\frac{3}{2}} = \boxed{\frac{2}{3} = \theta} \qquad \frac{2}{3}\left(\frac{180°}{\pi}\right) = \left(\frac{120}{\pi}\right)° \approx \boxed{38.2°}$$

(19) DRAW $-\frac{3\pi}{4}$ RADIANS



(21) DRAW 2 RADIANS

$$\frac{\pi}{2} < 2 < \frac{4\pi}{6}$$



(23) TRIGONOMETRIC RATIOS FOR $\frac{3\pi}{4}$

$\theta = \frac{3\pi}{4}$

$\sin(\theta) = \frac{1}{\sqrt{2}}$	$\cos(\theta) = -\frac{1}{\sqrt{2}}$	$\tan(\theta) = -1$
$\csc(\theta) = \sqrt{2}$	$\sec(\theta) = -\sqrt{2}$	$\cot(\theta) = -1$

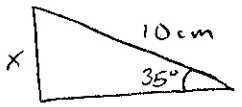
SM 121 LESSON 2 22 AUG 08

(27) TRIGONOMETRIC RATIOS FOR $\frac{5\pi}{6}$

$\theta = \frac{5\pi}{6}$

$\sin(\theta) = \frac{1}{2}$	$\cos(\theta) = -\frac{\sqrt{3}}{2}$	$\tan(\theta) = -\frac{1}{\sqrt{3}}$
$\csc(\theta) = 2$	$\sec(\theta) = -\frac{2}{\sqrt{3}}$	$\cot(\theta) = -\sqrt{3}$

(35) FIND LENGTH OF X



$$35^\circ\left(\frac{\pi}{180}\right) = \frac{7\pi}{36} \text{ RADIANS}$$

$$\sin\left(\frac{7\pi}{36}\right) = \frac{x}{10}$$

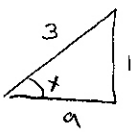
$$x = 10\left(\sin\left(\frac{7\pi}{36}\right)\right)$$

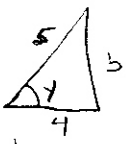
$$x = 10(0.573576)$$

$$\boxed{x = 5.73576 \text{ cm}}$$

(59) IF $\sin x = \frac{1}{3}$ AND $\sec y = \frac{5}{4}$ $\quad 0 \le x \le \frac{\pi}{2}$

$\cos y = \frac{4}{5}$ $\quad 0 \le y \le \frac{\pi}{2}$





$3^2 = a^2 + 1^2$

$9 = a^2 + 1$

$8 = a^2$

$a = \sqrt{8}$

$a = 2\sqrt{2}$

$5^2 = 4^2 + b^2$

$25 = 16 + b^2$

$9 = b^2$

$b = 3$

EVALUATE $\sin(x+y) = \sin x \cos y + \cos x \sin y$

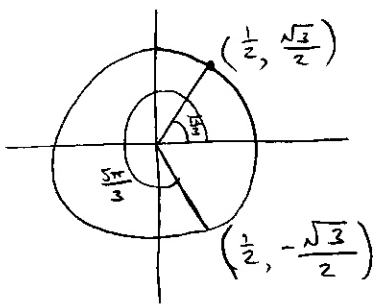
$$= \left(\frac{1}{3}\right)\left(\frac{4}{5}\right) + \left(\frac{2\sqrt{2}}{3}\right)\left(\frac{3}{5}\right)$$

$$= \frac{4}{15} + \frac{2\sqrt{2}}{5}$$

$$= \frac{4}{15} + \frac{6\sqrt{2}}{15}$$

$$= \frac{4 + 6\sqrt{2}}{15}$$

$$\boxed{\sin(x+y) = \frac{1}{15}\left(4 + 6\sqrt{2}\right)}$$

(65) FIND ALL VALUES OF x ON $[0, 2\pi]$ THAT SATISFY $2\cos x - 1 = 0$

$$2\cos x - 1 = 0$$
$$2\cos x = 1$$
$$\cos x = \frac{1}{2}, \quad \boxed{\text{WHEN } x = \frac{\pi}{3}, \frac{5\pi}{3}}$$