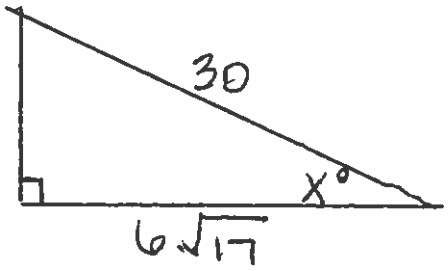
Unit 8 Selected Review Problems

(2)



$\cos x = \frac{6\sqrt{17}}{30}$

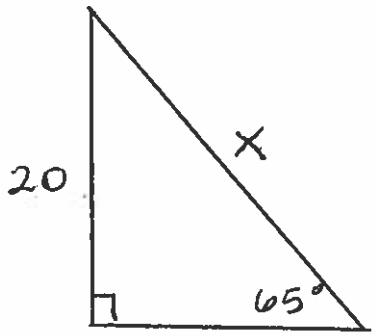
$\cos x = \frac{\sqrt{17}}{5}$

$x = \cos^{-1}\left(\frac{\sqrt{17}}{5}\right)$

$x = \text{arc}\cos\left(\frac{\sqrt{17}}{5}\right)$

$x \approx 34.450°$

(6)



$\frac{\sin 65}{1} = \frac{20}{x}$

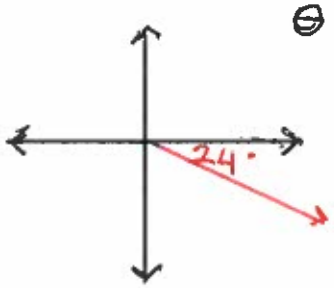
$x \cdot \sin 65 = 20$

$x = \frac{20}{\sin 65}$

$x \approx 22.069$

(14)

$\theta = 336°$

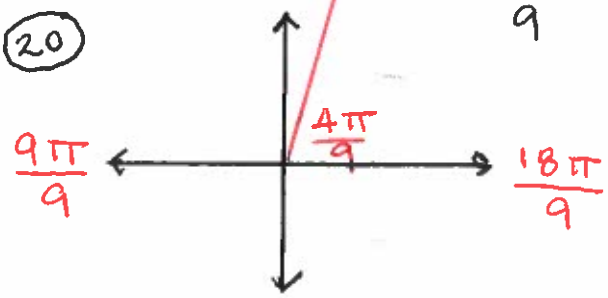


Q: 4

$360 - 336 = 24°$ = ref

(20)

$\theta = -\frac{14\pi}{9}$

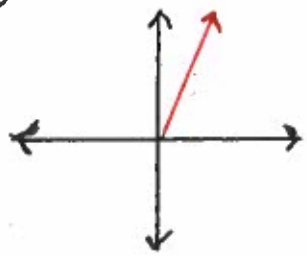


Q: 1

ref: $\frac{4\pi}{9}$

Unit 8 Selected Review Problems

(22) $\theta = 65°$



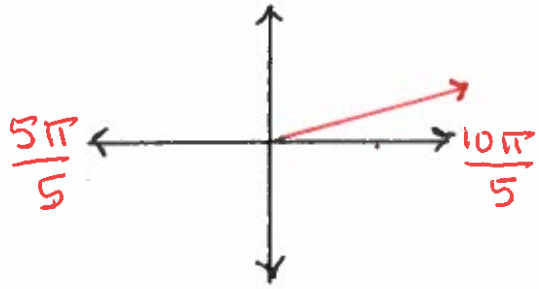
degrees to radians

$65 \times \frac{\pi}{180} = \frac{65\pi}{180} = \frac{13\pi}{36}$

+ coterminal $65 + 360 = 425°$

− coterminal $65 - 360 = -295$

(24) $\theta = \frac{11\pi}{5}$



radians to degrees

$\frac{11\pi}{5} \times \frac{180}{\pi} = \frac{1980}{5} = 396°$

$36°$

+ coterminal $\frac{11\pi}{5} + \frac{10\pi}{5} = \frac{21\pi}{5}$

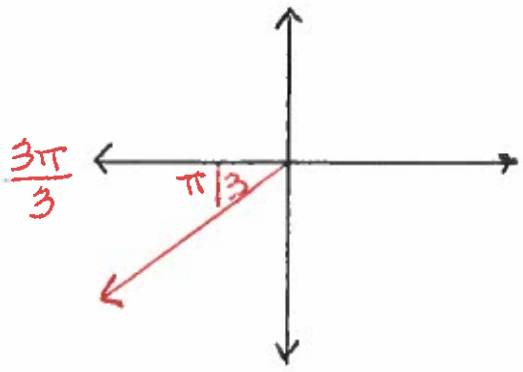
− coterminal $\frac{11\pi}{5} - \frac{10\pi}{5} = \frac{1\pi}{5}$

$\frac{1\pi}{5} - \frac{10\pi}{5} = \frac{-9\pi}{5}$

(42) note: 33-44 will put you into one of the 3 special right triangles

$\theta = \frac{-2\pi}{3}$

ref: $\frac{\pi}{3}$



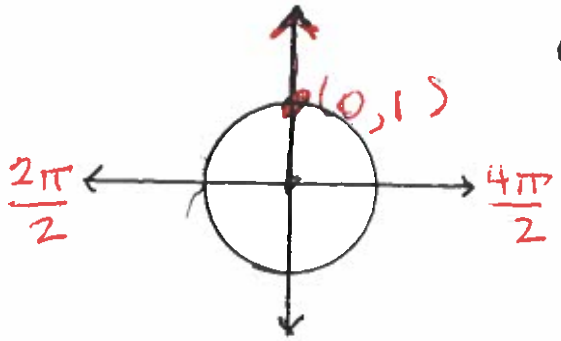
$\sin\theta = -\frac{\sqrt{3}}{2}$

$\cos\theta = -\frac{1}{2}$

$\tan\theta = \sqrt{3}$

(48) Note: for problems 45-50 you'll be working with quadrantals

$\theta = -\frac{3\pi}{2}$



ref: quadrantal between Q's 1 and 2

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

$\cos = \frac{x}{r} = \frac{0}{1} = 0$

$\tan = \frac{y}{x} = \frac{1}{0} = \text{undef.}$

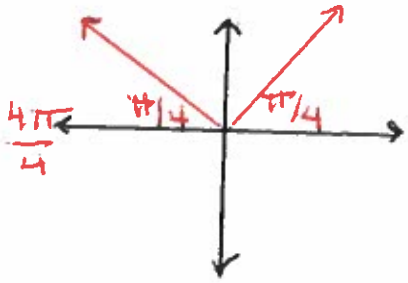
(54) Solve for θ $\quad 0 \le \theta \le 2\pi$ (radians)

$8\sin\theta - 4\sqrt{2} = 0$

$+4\sqrt{2} \qquad +4\sqrt{2}$

$\frac{8\sin\theta}{8} = \frac{4\sqrt{2}}{8}$

$\sin\theta = \frac{\sqrt{2}}{2}$



ref $= \frac{\pi}{4}$ Q's 1 and 2

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

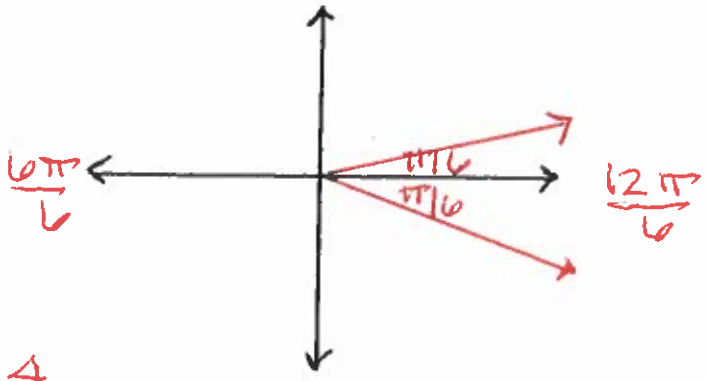
(62) $(2\cos\theta - \sqrt{3})(2\cos\theta + 1) = 0$

$2\cos\theta - \sqrt{3} = 0$

$2\cos\theta = \sqrt{3}$

$\cos\theta = \frac{\sqrt{3}}{2}$ ref: $\frac{\pi}{6}$

Q: 1 and 4

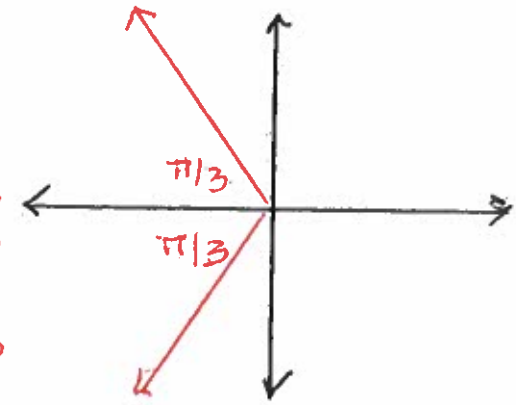


$\theta = \frac{\pi}{6}$ and $\frac{11\pi}{6}$

$2\cos\theta + 1 = 0$

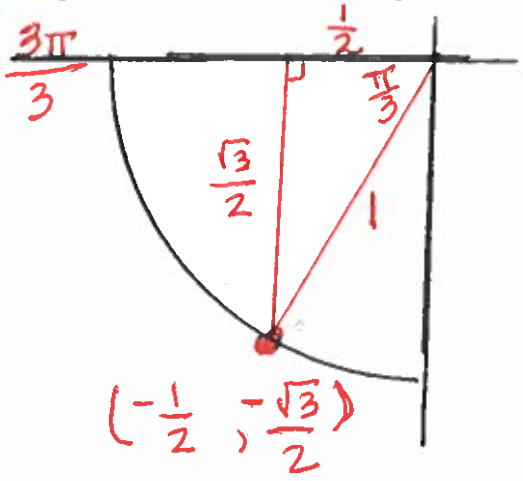
$2\cos\theta = -1$ ref: $\frac{\pi}{3}$

$\cos\theta = -\frac{1}{2}$ Q: 2 and 3

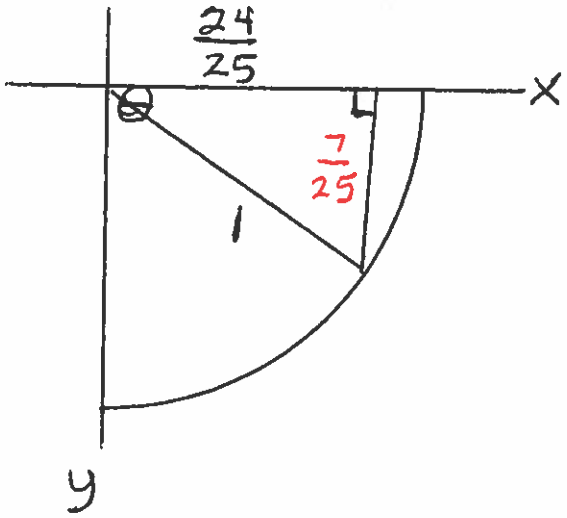


$\theta = \frac{2\pi}{3}$ and $\frac{4\pi}{3}$

(70) $\theta = \frac{4\pi}{3}$



(72)



$\sin\theta = -\frac{7}{25}$

$\cos\theta = \frac{24}{25}$

$\tan\theta = -\frac{7}{24}$

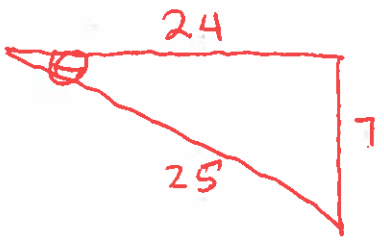
$a^2 + b^2 = c^2$

$24^2 + y^2 = 25^2$

$576 + y^2 = 625$

$y^2 = 49$

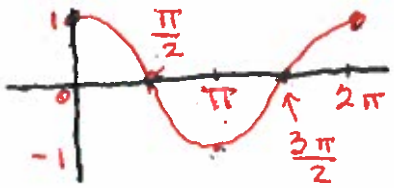
$y = \sqrt{49} = 7$



(74) $f(x) = 2\cos\left(x + \frac{\pi}{2}\right) + 1$

amp = 2

Shift = 1 ↑ and $\frac{\pi}{2}$ ←



$y = \cos x$