

a)  $\cos \theta = \frac{\sqrt{3}}{2}$ ,  $0^\circ < \theta < 360^\circ$   
 $\bar{\theta} = 30^\circ$ 

Q1	Q4
$\theta = 30^\circ$	$\theta = 330^\circ$

b)  $\sin \theta = -\frac{\sqrt{2}}{2}$ ,  $0 < \theta < \pi$   
 $\bar{\theta} = \frac{\pi}{4}$ 

Q3	Q4
$\theta = \frac{5\pi}{4}$	$\theta = \frac{7\pi}{4}$

c)  $\cot \theta = \text{undefined}$ ,  $0^\circ \leq \theta \leq 720^\circ$   
 $\theta = 0^\circ, 180^\circ, 360^\circ, 540^\circ, 720^\circ$

d)  $2 \sin \theta - 1 = 0$ ,  $-\pi \leq \theta \leq \pi$   
 $\sin \theta = \frac{1}{2}$   
 $\bar{\theta} = \frac{\pi}{6}$ 

Q1	Q2
$\theta = \frac{\pi}{6}$	$\theta = \frac{5\pi}{6}$
$\theta = -\frac{11\pi}{6}$	$\theta = -\frac{7\pi}{6}$

e)  $\cos^2 \theta + \frac{1}{3} \cos \theta = 0$ ,  $0^\circ \leq \theta \leq 360^\circ$   
 $\cos \theta (\cos \theta + \frac{1}{3}) = 0$   
 $\cos \theta = 0$  |  $\cos \theta + \frac{1}{3} = 0$   
 $\theta = 90^\circ, 270^\circ$  |  $\cos \theta = -\frac{1}{3}$   
 $\bar{\theta} = 60^\circ$ 

Q2	Q3
$\theta = 120^\circ$	$\theta = 240^\circ$

$$\textcircled{a) } \frac{3}{1 - 2\sin\left(\frac{3\pi}{4}\right)} \rightarrow \frac{3}{1 - 2\left(\frac{\sqrt{2}}{2}\right)} \rightarrow \frac{3}{(1 - \sqrt{2})(1 + \sqrt{2})} \rightarrow \frac{3 + 3\sqrt{2}}{1 - 2} \rightarrow \frac{-3 - 3\sqrt{2}}{1}$$

$$\text{b) } \frac{\sin^2 225^\circ}{8\sin 130^\circ} \rightarrow \frac{\left(\frac{-1}{\sqrt{2}}\right)^2}{8\left(\frac{\sqrt{3}}{2}\right)} \rightarrow \frac{\frac{1}{2}}{4\sqrt{3}} \rightarrow \frac{1}{2} \times \frac{1}{4\sqrt{3}} \rightarrow \frac{1}{8\sqrt{3}} \rightarrow \frac{\sqrt{3}}{24}$$

$$\text{c) } \cos^2 210^\circ + \sin^2 330^\circ - \sin 90^\circ + \tan 130^\circ$$

$$\Rightarrow \left(\frac{-\sqrt{3}}{2}\right)^2 + \left(\frac{-1}{2}\right)^2 - (1) + \left(-\frac{\sqrt{3}}{1}\right)$$

$$\rightarrow \frac{3}{4} + \frac{1}{4} - 1 - \sqrt{3}$$

$$\rightarrow \boxed{-\sqrt{3}}$$

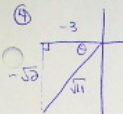
$$\text{d) } \frac{2\cos 3\pi + \sin \frac{4\pi}{4}}{\cos^2 \frac{\pi}{6}} \rightarrow \frac{2(-1) + \left(\frac{\sqrt{2}}{2}\right)}{\left(\frac{\sqrt{3}}{2}\right)^2} \rightarrow \frac{-2 + \frac{\sqrt{2}}{2}}{\frac{3}{4}} \rightarrow$$

$$\frac{-4 + \sqrt{2}}{\frac{3}{2}} \times \frac{2}{3} \rightarrow \boxed{\frac{-8 + 2\sqrt{2}}{3}}$$

$$\textcircled{2} \begin{array}{l} \begin{array}{|c|} \hline \text{Right Triangle} \\ \hline \end{array} \\ \begin{array}{l} c^2 = (a)^2 + (b)^2 \\ c^2 = 4 + 36 \\ c = \sqrt{40} \\ c = 2\sqrt{10} \end{array} \end{array}$$

$$\begin{array}{l} \sin \theta = \frac{6}{2\sqrt{10}} = \frac{3}{\sqrt{10}} = \frac{3\sqrt{10}}{10} \\ \cos \theta = \frac{-2}{2\sqrt{10}} = \frac{-1}{\sqrt{10}} = \frac{-\sqrt{10}}{10} \\ \tan \theta = \frac{6}{-2} = -3 \\ \csc \theta = \frac{\sqrt{10}}{3} \\ \sec \theta = \frac{-\sqrt{10}}{2} \\ \cot \theta = \frac{-1}{3} \end{array}$$

④



$c^2 = a^2 + b^2$   
 $(\sqrt{14})^2 = (3)^2 + b^2$   
 $14 = 9 + b^2$   
 $+ \sqrt{5} = b$   
 $-\sqrt{5} = b$

$\sin \theta = \frac{-\sqrt{5}}{\sqrt{14}} = \frac{\sqrt{20}}{14}$   
 $\cos \theta = \frac{-3}{\sqrt{14}} = \frac{-3\sqrt{14}}{14}$   
 $\tan \theta = \frac{\sqrt{5}}{3}$   
 $\csc \theta = \frac{\sqrt{14}}{\sqrt{5}} = \frac{\sqrt{70}}{5}$   
 $\sec \theta = \frac{\sqrt{14}}{3}$   
 $\cot \theta = \frac{3}{\sqrt{5}} = \frac{3\sqrt{5}}{5}$

a)  $\frac{2\pi}{9} + \frac{15\pi}{9} = \frac{17\pi}{9}$   
 b)  $\frac{2\pi}{9} - \frac{15\pi}{9} = -\frac{13\pi}{9}$   
 c)  $-900^\circ + 360^\circ = -540^\circ$   
 $-900^\circ + 1080^\circ = 180^\circ$   
 d)  $360^\circ - 360^\circ = 0^\circ$   
 $360^\circ + 360^\circ = 720^\circ$

## Attachments

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Worksheet - Sketching Angles in Radians.doc