Precalc Worksheet Section 7.5 Solutions

1) $\sin\theta = \frac{3}{5}$ $\quad \csc\theta = \frac{5}{3}$

$\cos\theta = -\frac{4}{5}$ $\quad \sec\theta = -\frac{5}{4}$

$\tan\theta = -\frac{3}{4}$ $\quad \cot\theta = -\frac{4}{3}$

2) $\sin\theta = \frac{3\sqrt{13}}{13}$ $\quad \csc\theta = \frac{\sqrt{13}}{3}$

$\cos\theta = \frac{2\sqrt{13}}{13}$ $\quad \sec\theta = \frac{\sqrt{13}}{2}$

$\tan\theta = \frac{3}{2}$ $\quad \cot\theta = \frac{2}{3}$

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

$\cos\theta = \frac{\sqrt{2}}{2}$ $\quad \sec\theta = \sqrt{2}$

$\tan\theta = -1$ $\quad \cot\theta = -1$

4) $\sin\theta = -\frac{3\sqrt{10}}{10}$ $\quad \csc\theta = -\frac{\sqrt{10}}{3}$

$\cos\theta = -\frac{\sqrt{10}}{10}$ $\quad \sec\theta = -\sqrt{10}$

$\tan\theta = 3$ $\quad \cot\theta = \frac{1}{3}$

5) $\cos\pi = -1$ 6) $\sec\pi = -1$ 7) $\tan\frac{3\pi}{2}$ = undefined 8) $\cot\frac{\pi}{2} = 0$

9) Q1 10) Q4 11) Q3 12) Q4 13) Q2 14) Q3

15 Reference $\measuredangle$ of 160° is 20°

16 25°

17 6°

18 $\frac{\pi}{4}$

19 $\frac{\pi}{6}$

20 30°

21 25°

22 ~~$\tan(210°) = \frac{\sqrt{2}}{2}$~~ $\cos 225° = -\frac{\sqrt{2}}{2}$

23 $\tan 210° = \frac{\sqrt{3}}{3}$ 24 $\tan 420° = \sqrt{3}$ 25 $\sin \frac{2\pi}{3} = \frac{\sqrt{3}}{2}$

26 $\csc \frac{7\pi}{6} = -2$ 27 $\tan \frac{9\pi}{4} = 2$ 28 $\sin(-240°) = \frac{\sqrt{3}}{2}$

29 $\tan\left(-\frac{\pi}{4}\right) = -1$

UNIT 6 WORKSHEET 15
EVALUATING TRIG FUNCTIONS OF ANY ANGLE

Find the exact value of the six trigonometric functions of an angle θ, in standard position, given the following information.

A) Given $\sin\theta = \frac{3}{5}$ the angle θ lies in quadrant II.

$\sin\theta = \frac{3}{5}$ $\quad \csc\theta = \frac{5}{3}$

$\cos\theta = -\frac{4}{5}$ $\quad \sec\theta = -\frac{5}{4}$

$\tan\theta = -\frac{3}{4}$ $\quad \cot\theta = -\frac{4}{3}$

B) Given $\tan\theta = \sqrt{3}$ the angle θ lies in quadrant III.

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

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

$\tan\theta = \sqrt{3}$ $\quad \cot\theta = \frac{\sqrt{3}}{3}$

C) Given $\cos\theta = -\frac{2}{3}$ the angle θ lies in quadrant III.

$\sin\theta = \frac{-\sqrt{5}}{3}$ $\quad \csc\theta = -\frac{3\sqrt{5}}{5}$

$\cos\theta = -\frac{2}{3}$ $\quad \sec\theta = -\frac{3}{2}$

$\tan\theta = \frac{\sqrt{5}}{2}$ $\quad \cot\theta = \frac{2\sqrt{5}}{5}$

D) Given $\tan\theta = -1$ the angle θ lies in quadrant II.

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

$\cos\theta = -\frac{\sqrt{2}}{2}$ $\quad \sec\theta = -\sqrt{2}$

$\tan\theta = -1$ $\quad \cot\theta = -1$

Given $\cos\theta = \frac{3}{5}$ the angle θ lies in quadrant IV.

$\sin\theta = -\frac{4}{5}$ $\quad \csc\theta = -\frac{5}{4}$

$\cos\theta = \frac{3}{5}$ $\quad \sec\theta = \frac{5}{3}$

$\tan\theta = -\frac{4}{3}$ $\quad \cot\theta = -\frac{3}{4}$

F) Given $\sin\theta = \frac{1}{10}$ the angle θ lies in quadrant I.

$\sin\theta = \frac{1}{10}$ $\quad \csc\theta = 10$

$\cos\theta = \frac{3\sqrt{11}}{10}$ $\quad \sec\theta = \frac{10\sqrt{11}}{33}$

$\tan\theta = \frac{\sqrt{11}}{33}$ $\quad \cot\theta = 3\sqrt{11}$