

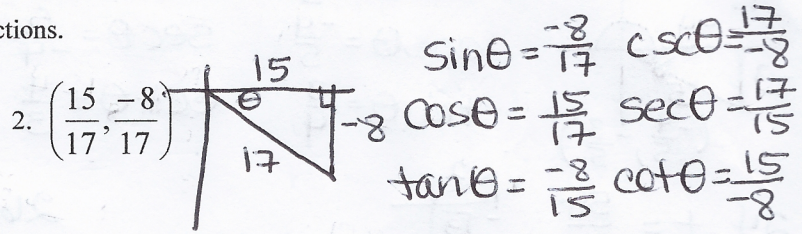
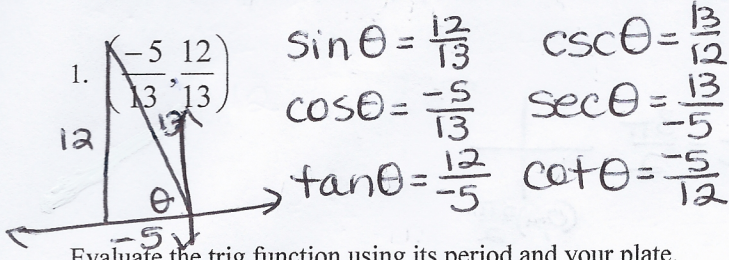
hmk p.299 #4, 24-28(e); 29-42 all

NOTES

October 9, 2012

Periodic, Even, and Odd Qualities of Trig Functions

Given the coordinate, determine the exact value of the six trig functions.



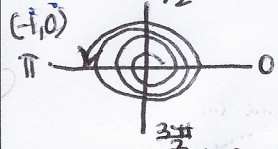
Evaluate the trig function using its period and your plate.

3. $\cos 7\pi = -1$

4. $\sin \frac{11\pi}{4} = \frac{\sqrt{2}}{2}$

5. $\sin \frac{-7\pi}{2} = 1$

6. $\cos \frac{-15\pi}{6} = 0$



EVEN Trig functions:

$\cos(-x) = \cos x$

$\sec(-x) = \sec x$

ODD Trig functions:

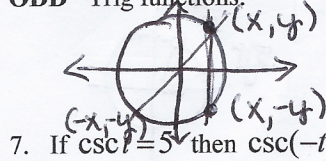
$\sin(-x) = -\sin x$

$\csc(-x) = -\csc x$

$\tan(-x) = -\tan x$

$\cot(-x) = -\cot x$

$\cos \frac{-15\pi}{6} = 0$



7. If $\csc t = 5$ then $\csc(-t) = -5$ and $\sin t = \frac{1}{5}$ then $\sin(-t) = -\frac{1}{5}$

* $\sin(-t) = -\sin t$ odd
 $\cos(-t) = \cos t$ even

NOTES

October 10, 2012

Cofunctions and Calculator Trig.

(p. 374)

Cofunction Identities:

$\sin(\frac{\pi}{2} - u) = \cos u$

$\cos(\frac{\pi}{2} - u) = \sin u$

$\cos(50^\circ) \rightarrow \sin(90^\circ - 50^\circ)$
 $\sin 40^\circ$

$\tan(\frac{\pi}{2} - u) = \cot u$

$\cot(\frac{\pi}{2} - u) = \tan u$

$\sec(\frac{\pi}{2} - u) = \csc u$

$\csc(\frac{\pi}{2} - u) = \sec u$

Use the given function values to find the indicated trig values. Draw a triangle or use your plate.

1. $\cos 30^\circ = \frac{\sqrt{3}}{2}$ $\tan 30^\circ = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$ $\sec 30^\circ = \frac{2\sqrt{3}}{3}$ $\cos(90^\circ - 30^\circ) = \frac{1}{2}$

2. $\tan \beta = 3$ $\cot \beta = \frac{1}{3}$ $\sin \beta = \frac{3\sqrt{10}}{10}$ $\sin(90^\circ - \beta) = \cos \beta = \frac{\sqrt{10}}{10}$

Use a calculator to evaluate the trig function. Round to 4 decimal places.

3. $\sin \frac{\pi}{5}$

4. $\csc \frac{3\pi}{7}$

5. $\tan 1.28$

6. $\sec 0.77$

7. $\cos 38^\circ$

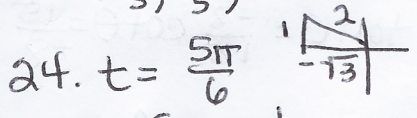
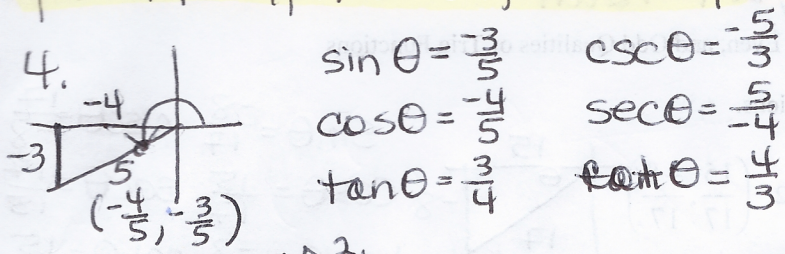
8. $\cot 77.5^\circ$

9. $\sin 57.8^\circ$

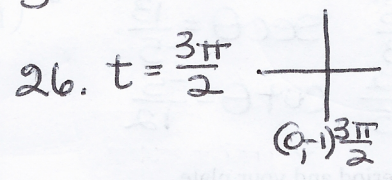
10. $\csc 29.5^\circ$

Hmk. p. 300 #43-52; p. 309 #27-32; 43-45

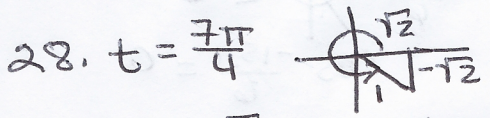
p. 299 # 424-28(e); 29-42 all



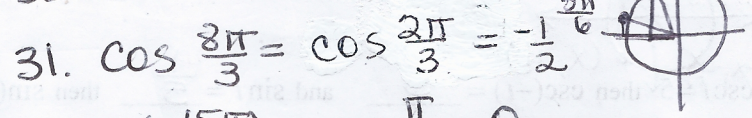
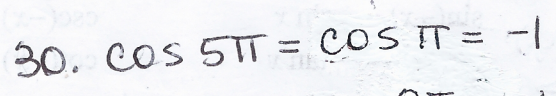
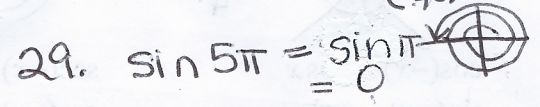
$\sin \frac{5\pi}{6} = \frac{1}{2}$ $\csc \frac{5\pi}{6} = 2$
 $\cos \frac{5\pi}{6} = -\frac{\sqrt{3}}{2}$ $\sec \frac{5\pi}{6} = -\frac{2\sqrt{3}}{3}$
 $\tan \frac{5\pi}{6} = -\frac{\sqrt{3}}{3}$ $\cot \frac{5\pi}{6} = -\sqrt{3}$



$\sin t = -1$ $\csc t = -1$
 $\cos t = 0$ $\sec t = u$
 $\tan t = u$ $\cot t = 0$
 (-1, 0)



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



32. $\sin \frac{9\pi}{4} = \sin \frac{\pi}{4} = \frac{\sqrt{2}}{2}$

33. $\cos(-\frac{15\pi}{2}) = \cos \frac{\pi}{2} = 0$

34. $\sin \frac{19\pi}{6} = \sin \frac{7\pi}{6} = -\frac{1}{2}$

35. $\sin(-\frac{9\pi}{4}) = \sin \frac{7\pi}{4} = -\frac{\sqrt{2}}{2}$

36. $\cos(-\frac{8\pi}{3}) = \cos \frac{4\pi}{3} = -\frac{1}{2}$

37. $\sin t = \frac{1}{3} \therefore$ a) $\sin(-t) = -\frac{1}{3}$ b) $\csc(-t) = -3$

38. $\sin(-t) = \frac{3}{8}$ a) $\sin(t) = -\frac{3}{8}$ b) $\csc t = -\frac{8}{3}$

39. $\cos(-t) = -\frac{1}{5}$ a) $\cos(t) = -\frac{1}{5}$ b) $\sec(-t) = -5$

40. $\cos(t) = -\frac{3}{4}$ a) $\cos(-t) = -\frac{3}{4}$ b) $\sec(-t) = -\frac{4}{3}$

41. $\sin t = \frac{4}{5}$ 42. $\cos t = \frac{4}{5}$

$\sin(\pi - t) = \frac{4}{5}$
 $\sin(t + \pi) = -\frac{4}{5}$

$\cos(\pi - t) = -\frac{4}{5}$
 $\cos(t + \pi) = -\frac{4}{5}$

