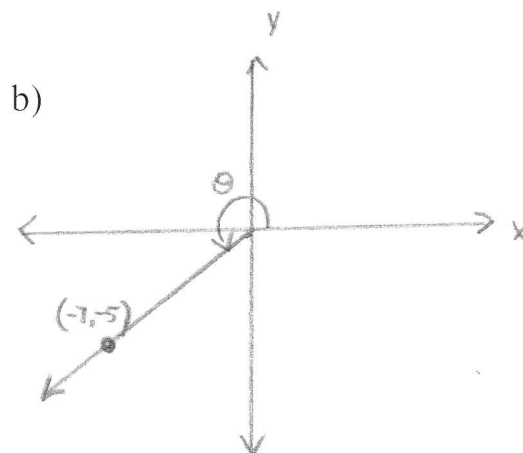
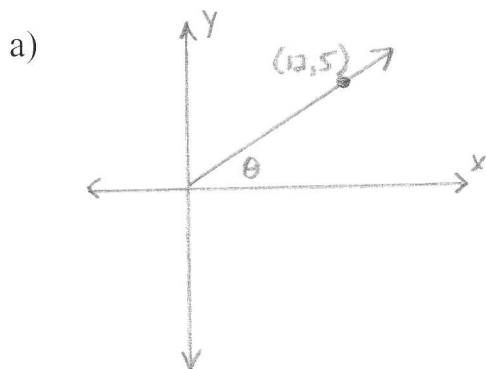


Math 121/122 Midterm Review

1. Use the diagrams to calculate the primary and reciprocal trigonometric values.



2. If $\tan \theta = \frac{-8}{13}$, find the value(s) of $\sin \theta$
3. If θ is a third quadrant angle and $\cos \theta = \frac{-8}{10}$ find the value of
- a) $\sin^2 \theta + \cos^2 \theta$ b) $(\cos \theta)(\csc \theta)(\tan \theta)$
4. Write the value of two coterminal angles and the principal angle for each
- a) -250° b) 620° c) -470°
5. Express each radian measure in degrees. (nearest tenth)
- a) 7.6 b) -2.5 c) 0.3 d) $\frac{\pi}{7}$ e) $\frac{-5\pi}{6}$
6. Express each degree in radian measure
- a) 86 b) -250 c) 360 d) -360 e) 780
7. Calculate the **exact value** of each of the following
- a) $\cos(-330^\circ)$ b) $\sin(150^\circ)$ c) $\cot(-60^\circ)$ d) $\tan\left(\frac{\pi}{3}\right)$
- e) $\cot\left(\frac{-7\pi}{3}\right)$ f) $\csc\left(\frac{8\pi}{6}\right)$ g) $\sec\left(\frac{9\pi}{4}\right)$ h) $\cos\left(\frac{2\pi}{3}\right)\sin\left(\frac{5\pi}{4}\right)$
- i) $\cos^2(225^\circ) + \tan^2\left(\frac{-7\pi}{6}\right)$

8. Find all the values of θ , $0 \leq \theta \leq 360^\circ$

a) $\sin \theta = 0.1746$ b) $\cos \theta = -0.1643$ c) $\cot \theta = 1.9645$

9. Find all the values of θ , $-\pi \leq \theta \leq \pi$

a) $\cos \theta = 0.1432$ b) $\sin \theta = -0.9615$ c) $\tan \theta = 1.0613$

10. Find all the values of θ , $0 \leq \theta \leq 2\pi$

a) $\csc \theta = 1.8724$ b) $\tan \theta = -2.5617$ c) $\cos \theta = 0.9684$

11. Sketch each of the following and state a) amplitude b) period
c) phase shift d) minimum and maximum values e) domain and range
f) equation of sinusoidal axis g) vertical translation

i) $y = \cos 2\left(\theta - \frac{\pi}{4}\right)$

ii) $\frac{1}{3}(y-1) = \sin \frac{1}{2}\left(\theta + \frac{\pi}{3}\right)$

iii) $y = 2 \tan \frac{1}{3}\left(\theta + \frac{\pi}{6}\right)$

iv) $\frac{-1}{2}(y+2) = \cos \frac{2}{3}\left(\theta - \frac{\pi}{2}\right)$

v) $y = 3 \sec 3\left(\theta + \frac{\pi}{2}\right) - 1$

vi) $y - 1 = \csc 2\left(\theta - \frac{\pi}{3}\right)$

12. Sketch each of the following for $0 \leq \theta \leq 2\pi$

a) $y = -2 \sin \frac{1}{2}(\theta - \pi) + 1$

b) $\frac{1}{3}(y-2) = \cos 2\left(\theta + \frac{\pi}{4}\right)$

13. Sketch each of the following for $-2\pi \leq \theta \leq 2\pi$

a) $\frac{-1}{2}(y+1) = \sin 2\left(\theta - \frac{\pi}{3}\right)$

b) $y = -\cot \frac{1}{3}\left(\theta - \frac{\pi}{2}\right)$

14. Write the defining equation for each. (Cosines curves)

i) amplitude = 2

period = $\frac{\pi}{4}$

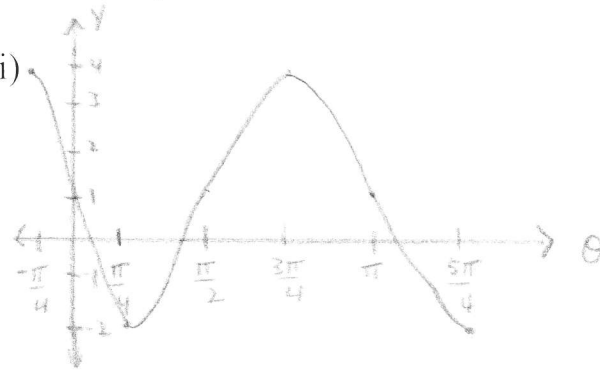
p. s. = $-\frac{\pi}{3}$

ii) amp. = 4

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

p.s. = $\frac{\pi}{6}$

iii)



15. Solve each of the following systems.

a) $4x - 3y = 15$
 $2x + 4y = 2$

b) $\frac{2x-3}{5} + \frac{2y-4}{3} = 7$
 $\frac{2(x+3)}{6} - \frac{(y+7)}{3} = -1$

c) $3x + y - 5 = 0$
 $4y - 5x + 1 = 0$

16. Given the equation $5x - 4y + 2z = 20$

a) Find the intercepts for this equation.

b) Graph the plane described by this equation.

c) Find the missing value $(50, -20, \underline{\quad})$