

**Unit 4 (no calc)**

**Radians**

Convert the following into radians or degrees.

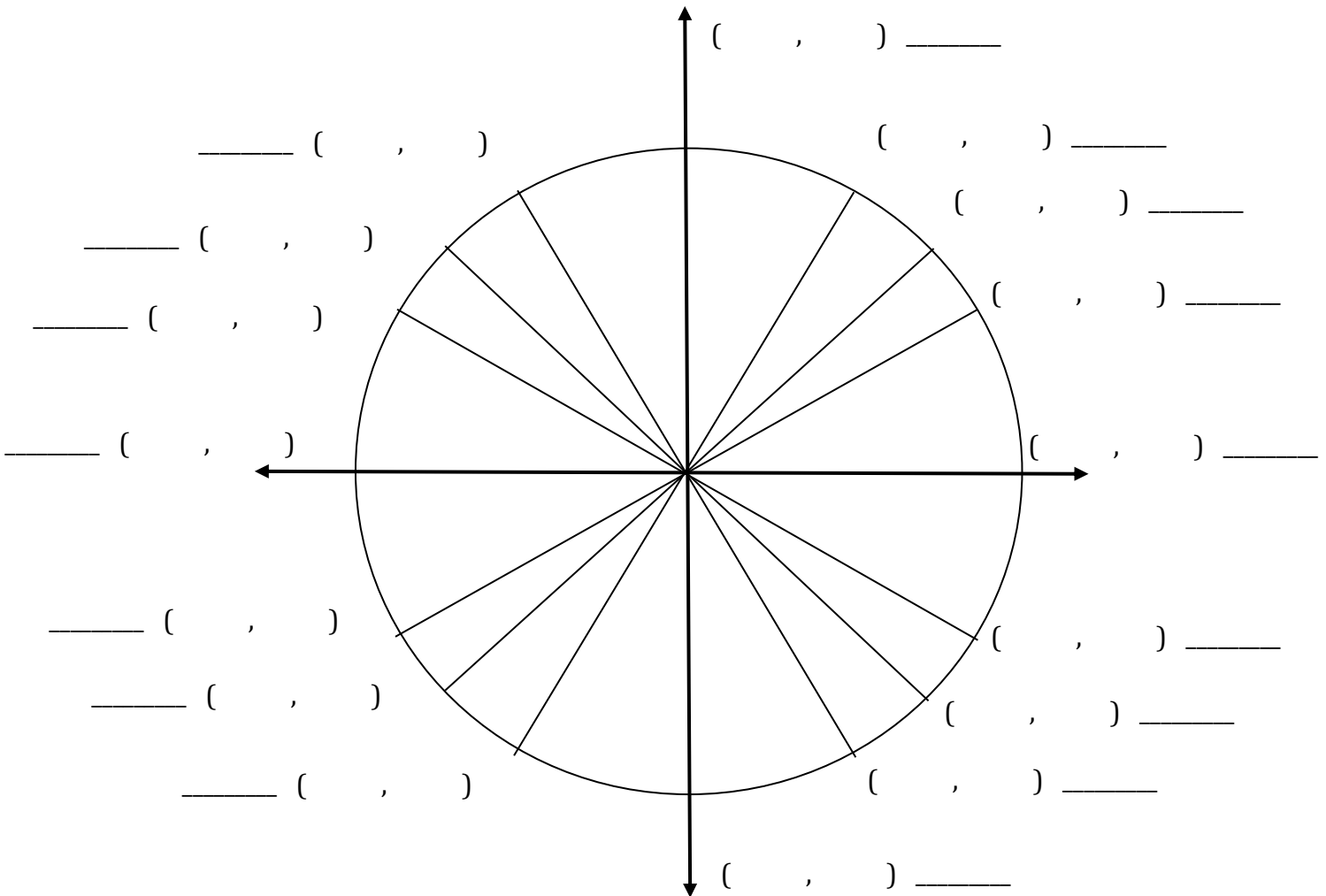
1.  $330^\circ$

2.  $-135^\circ$

3.  $\frac{5\pi}{6}$

4.  $-\frac{\pi}{4}$

**Unit Circle**



Find the exact value (acute angle only/on the interval  $0 \leq \theta \leq \frac{\pi}{2}$ ).

5.  $\sin^{-1}\left(\frac{1}{2}\right)$

6.  $\tan^{-1}(\sqrt{3})$

7.  $\sin\left(\tan^{-1}\frac{\sqrt{3}}{3}\right)$

8.  $\cos^{-1}\left(\sin\frac{\pi}{3}\right)$

Evaluate the following for  $\theta$ .

9.  $\cos\theta = -\frac{\sqrt{2}}{2}; 0 \leq \theta \leq \pi$

10.  $\sec\theta = -\sqrt{2}; \pi \leq \theta \leq 2\pi$

11.  $\tan\theta = \sqrt{3}; \pi \leq \theta \leq 2\pi$

Evaluate the following:

12.  $\csc \frac{5\pi}{4}$

13.  $\cos \frac{11\pi}{6}$

14.  $\sin \frac{3\pi}{2}$

15.  $\cot \frac{\pi}{3}$

16.  $\sin \frac{7\pi}{6}$

17.  $\tan \frac{5\pi}{6}$

18.  $\sec \frac{7\pi}{4}$

19.  $\cos \pi$

State which quadrants the following functions are positive in.

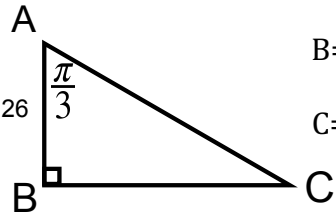
20. Sine

21. Cosine

22. Tangent

**Solving Right Triangles**

23.



A=

a=

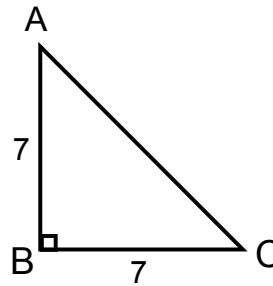
B=

b=

C=

c=

24.



A=

a=

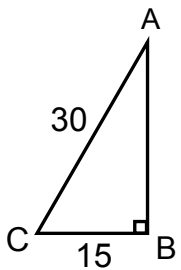
B=

b=

C=

c=

25.



A=

a=

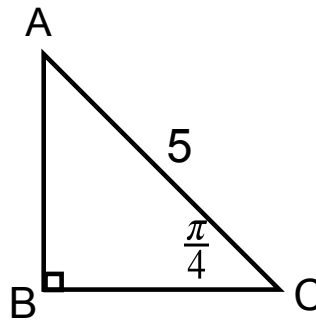
B=

b=

C=

c=

26.



A=

a=

B=

b=

C=

c=

27. Right  $\triangle PQR$  with  $\overline{PQ} \perp \overline{PR}$ ,  $QR = 34$  and  $m\angle Q = \frac{\pi}{6}$ .

P=                  p=

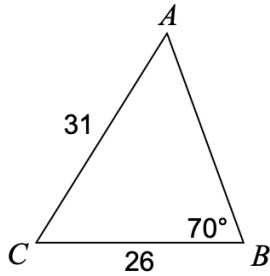
Q=                  q=

R=                  r=

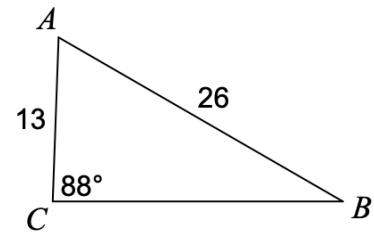
## Unit 5

### Law of Sines (calc)

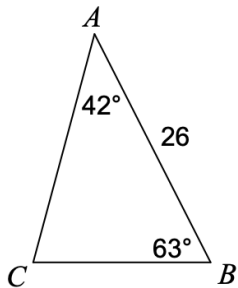
28. Find angle A



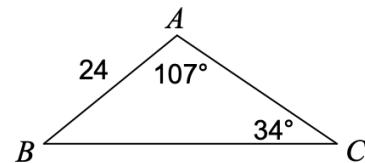
29. Find angle B



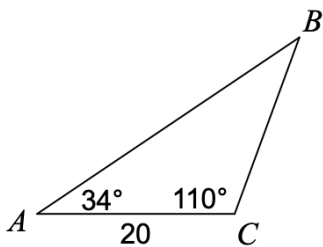
30. Find side b



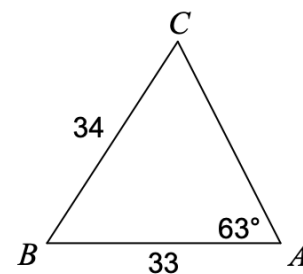
31. Find side a



32. Solve for all missing sides and angles

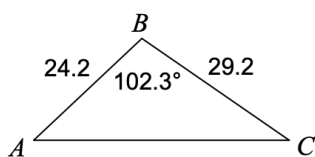


33. Solve for all missing sides and angles

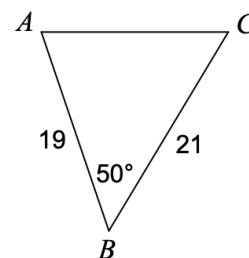


### Law of Cosines (calc)

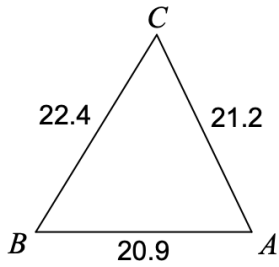
34. Find side b



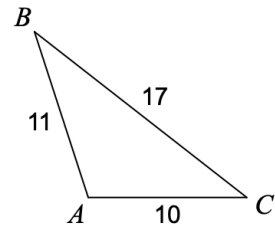
35. Find side b



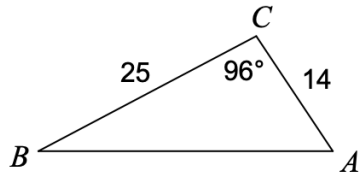
36. Find angle C



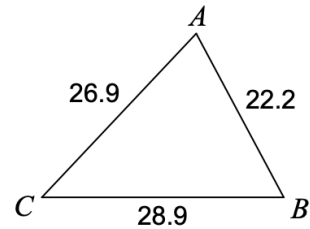
37. Find angle C



38. Solve for all sides and angles



39. Solve for all sides and angles



### Graphing Trig (no calc)

State the amplitude, phase shift, period, and vertical shift of each of the following.

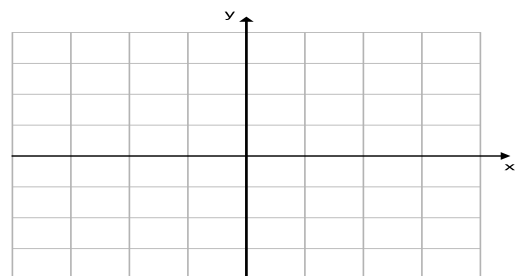
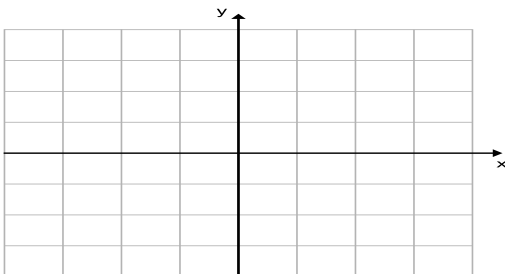
40.  $y = 3 \sin(4\theta) + 1$

41.  $f(x) = 2 \cos\left(\theta - \frac{\pi}{2}\right)$

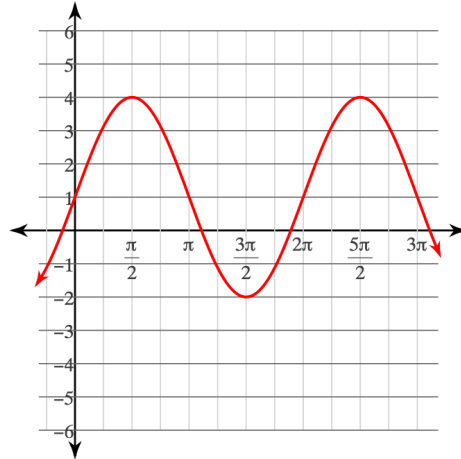
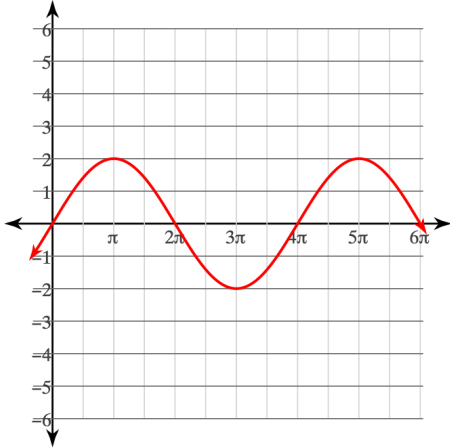
Graph the following.

42.  $f(x) = -2 \sin(\theta)$

43.  $f(x) = \cos(2\theta) - 1$



44. Write an equation for the each of the following graphs:



## Unit 6

### Pythagorean Identities

Prove the following identities:

45.  $(\sec^2 x + \csc^2 x) - (\tan^2 x + \cot^2 x) = 2$

46.  $\frac{1 - \sin^2 \theta}{\sin^2 \theta} = \cot^2 \theta$

47.  $\sin x(\tan x + \cot x) = \sec x$

48.  $\frac{1}{\sin^2 y} - \frac{\cos^2 y}{\sin^2 y} = 1$

49.  $\frac{\sec x - \cos x}{\tan x} = \sin x$

### Sum and Difference Identities

Evaluate:

50.  $\tan 75^\circ$

51.  $\cos 15^\circ$

52.  $\sin 75^\circ$