9.3 Unit Circle and Radians

NOTES

ALGEBRA 2

Write your questions here!

APPROXIMATE VALUE **sin 60°**

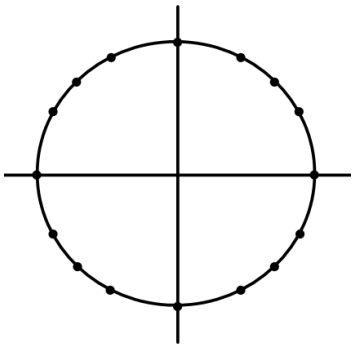
EXACT VALUES

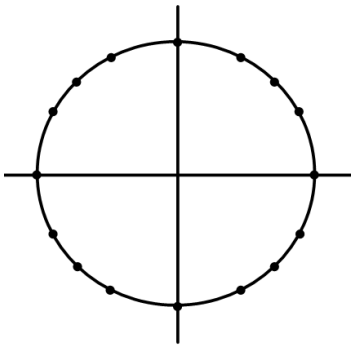
SPECIAL ANGLES

30° – 60° – 90°

45° – 45° – 90°

FIND THE EXACT VALUE! (vs approx.)





cos 30° =

sin 45° =

sin 210° =

cos 300° =

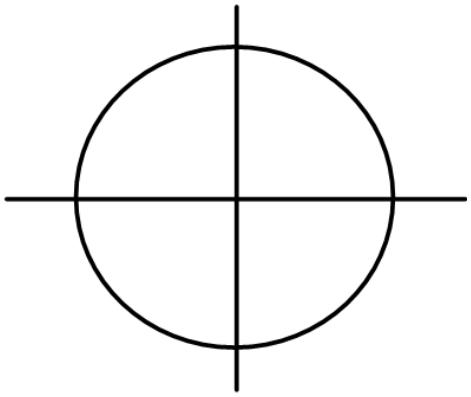
tan 45° =

sin 60° =

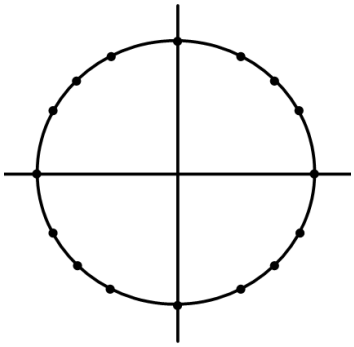
tan 300° =

sin 150° =

Radians -



FIND THE EXACT VALUE!



$\sin\left(\frac{\pi}{3}\right) =$

$\cos\left(\frac{\pi}{4}\right) =$

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

$\sin\left(\frac{\pi}{6}\right) =$

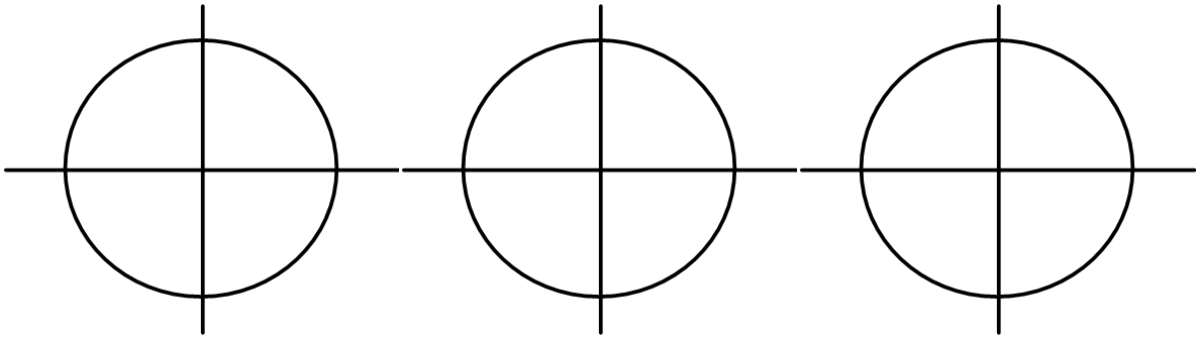
FIND THE APPROXIMATE VALUE!

$\sin\left(\frac{\pi}{3}\right) =$

$\cos(32°) =$

$\tan\left(\frac{\pi}{7}\right) =$

Unit Circle –



SUMMARY:

Now, summarize your notes here!

PRACTICE

Use a calculator to find the APPROXIMATE value for each of the following. Round to nearest hundredth.

1. $\cos(150°)$	2. $\tan 210°$	3. $\sin(\pi)$	4. $\sin(-120°)$
5. $\cos(23°)$	6. $\sin\left(\frac{\pi}{5}\right)$	7. $\tan\left(\frac{2\pi}{3}\right)$	8. $\cos \pi$

Use the unit circle and special right triangles to find the EXACT value. NO DECIMALS!

9. $\sin(30°)$	10. $\cos(90°)$	11. $\tan(30°)$	12. $\cos\left(\frac{\pi}{3}\right)$
13. $\sin\left(\frac{\pi}{2}\right)$	14. $\sin(0°)$	15. $\cos\left(\frac{\pi}{4}\right)$	16. $\sin(\pi)$
17. $\sin(360°)$	18. $\tan(60°)$	19. $\tan(90°)$	20. $\cos\left(\frac{\pi}{6}\right)$

Fill in the table with EXACT values. NO DECIMALS!

21. $f(\theta) = \sin(\theta)$

$\boldsymbol{\theta}$	$\boldsymbol{f(\theta)}$
0°	
30°	
45°	
60°	
90°	

22. $f(\theta) = \cos(\theta)$

$\boldsymbol{\theta}$	$\boldsymbol{f(\theta)}$
0π	
$\frac{\pi}{6}$	
$\frac{\pi}{4}$	
$\frac{\pi}{3}$	
$\frac{\pi}{2}$	

Fill in the table with APPROXIMATE values. Round to the nearest hundredth.

23. $f(\theta) = \sin(2\theta)$

$\boldsymbol{\theta}$	$\boldsymbol{f(\theta)}$
0°	
30°	
45°	
60°	
90°	

24. $f(\theta) = \cos(\theta) + 2$

$\boldsymbol{\theta}$	$\boldsymbol{f(\theta)}$
0π	
$\frac{\pi}{6}$	
$\frac{\pi}{4}$	
$\frac{\pi}{3}$	
$\frac{\pi}{2}$	

Solve the following.

25. $(x-2)^2 + 7 = 27$

26. $9 = 2(b)^3$

27. $20 = -4(2)^t$

WRAP UP

1. Find the approximate value.
   Round to nearest hundredth.

   $\cos\left(\frac{\pi}{5}\right)$

2. Find the exact value.

   $\tan(60°)$

3. A Unit Circle has a radius of 1 and center at the origin, therefore the equation of the circle is $x^2 + y^2 = 1$.
   Determine if the following points lie on the unit circle.

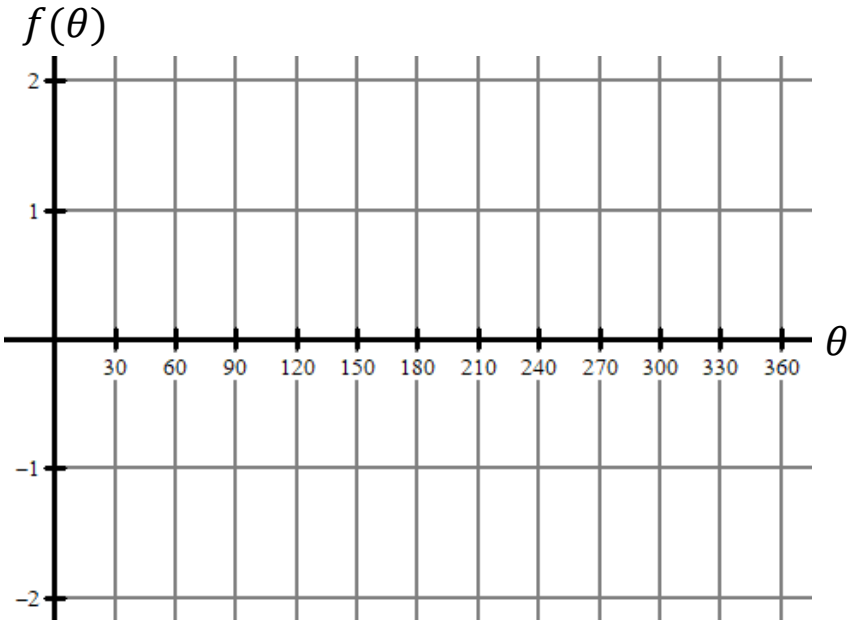
   a. $\left(\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$

   b. $\left(\frac{1}{4}, \frac{1}{4}\right)$

GRAPH IT! Fill in the table with APPROXIMATE values (round to nearest tenth) and plot the points.

4. $f(\theta) = \sin(\theta)$

$\boldsymbol{\theta}$	$\boldsymbol{f(\theta)}$
0°	
30°	
45°	
60°	
90°	
120°	
135°	
150°	
180°	
210°	
225°	
240°	
270°	
300°	
315°	
330°	
360°	



a. What are the maximum(s)?

b. What are the minimum(s)?

c. What is the domain and range of the function?