

Name: _____

Pre Cal 12 A.

Trig Equations

10.6 Exercise

A For Questions 1 to 4,

- draw a possible reference triangle.
- solve for the angle.

1 Solve. $0^\circ \leq \theta \leq 90^\circ$

(a) $\cos \theta = \frac{\sqrt{3}}{2}$

(b) $\sin \theta = \frac{1}{\sqrt{2}}$

(c) $\cos \theta = 1$

(d) $\sin \theta = 0$

(e) $\cos \theta = 0$

(f) $\sin \theta = 1$

2 Solve each of the following for θ . (Hint: Remember the reciprocal identities.)

(a) $\sec \theta = 2$

(b) $\csc \theta = \frac{2}{\sqrt{3}}$

(c) $\sec \theta = 1$

(d) $\tan \theta = 1$

(e) $\tan \theta = \sqrt{3}$

(f) $\cot \theta = \sqrt{3}$

3 Solve $\cos \theta = \frac{1}{2}$ for θ under each condition.

(a) $0^\circ \leq \theta \leq 90^\circ$

(b) $0^\circ \leq \theta \leq 360^\circ$

(c) Why is the solution set different in (b)?

4 Solve for θ where $0^\circ \leq \theta \leq 90^\circ$.

(a) $\sin \theta = \frac{\sqrt{3}}{2}$

(b) $\csc \theta = \frac{2}{\sqrt{3}}$

(c) How do the answers to (a) and (b) compare? Why?

B Remember: You may need to use various algebraic skills. ▶▶▶▶

5 Solve for θ . $0^\circ \leq \theta \leq 360^\circ$

(a) $\sin \theta = \frac{4}{5}$

(b) $\cos \theta = \frac{-6}{17}$

(c) $\tan \theta = \frac{7}{3}$

(d) $\cot \theta = \frac{-4}{9}$

(e) $\sec \theta = \frac{5}{3}$

(f) $\csc \theta = \frac{51}{4}$

11 Find the roots for each of the following. $0^\circ \leq \theta \leq 90^\circ$

(a) $\cos^2 \theta = -\cos \theta$

(b) $2 \sin^2 \theta - \sin \theta = 0$

(c) $\sin^2 \theta - 6 \sin \theta + 5 = 0$

(d) $4 \cos^2 \theta + \cos \theta - 3 = 0$

Pre Cal 12 A Review Trig Part 2

1. Determine the equation of the circle with centre at the origin and the given radius.

a) radius = 7

b) radius = 11

2. Determine the missing coordinate(s) for all points on the unit circle" satisfying the given conditions.

a) $(-\frac{1}{4}, y)$ in quadrants II and III

b) $(x, -\frac{2}{3})$ in quadrants III and IV

3. $P(\theta) = (x, y)$ is the point where the terminal arm of an angle θ intersects the unit circle. What are the coordinates for each point?

a) $P(\frac{5\pi}{6})$

b) $P(-\frac{7\pi}{4})$

4. Identify all measures for θ in the interval $-2\pi \leq \theta \leq 2\pi$ such that $P(\theta)$ is the given point.

a) $(0, 1)$

b) $(\frac{\sqrt{3}}{2}, -\frac{1}{2})$

c) $(-\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}})$

5. Complete the following table for "the unit circle"

angle of rotation	Image of P(1,0)		
	As (x,y)	As a decimal	Exact
30°			
	(cos 45°, sin 45°)		
			(-1/2, √3/2)
225°		(-0.866, -0.5)	
	(cos 315°, sin 315°)		
-60°			
	cos 510°, sin 510°		

6. Explain why $\sin 315^\circ = -\frac{\sqrt{2}}{2}$

7. Fill in the following chart

Degrees	Radians	Degrees	Radians
30°		720°	
210°			$\frac{5\pi}{4}$
	$\frac{\pi}{6}$		$\frac{3\pi}{2}$
	$\frac{2\pi}{3}$	420°	
180°			$-\frac{11\pi}{6}$
	$\frac{\pi}{2}$	-45°	
	$\frac{3\pi}{4}$		$\frac{7\pi}{4}$

8. Complete the following table

angle of rotation		Exact coordinates of P	Circle	
degrees	radians		Radius	Arc Length
	$\pi/4$		3	
	$3\pi/2$		2	
330°			1	
150°				5π
	$6\pi/3$			4π
	$5\pi/4$	(√2, -√2)		

Evaluate

a) $\frac{\sin \pi}{3} \cos \frac{5\pi}{6}$

b) $\cos \frac{\pi}{6} \sin \frac{4\pi}{3} - \sin \frac{3\pi}{4}$

c) $\sin^2 \frac{5\pi}{3} + \cos^2 \left(-\frac{7\pi}{6} \right)$

d) $12 \frac{\sin \pi}{4} \cos \frac{\pi}{4}$

e) $20 \frac{\sin \pi}{3} \cos \frac{4\pi}{3}$

f) $\cos \pi \cos \frac{\pi}{4} - \sin \pi \sin \frac{\pi}{4}$

10) Solve for θ . Give exact values where possible

a) $\sin^2 \theta + \sin \theta - 2 = 0, 0 \leq \theta \leq 2\pi$

b) $6 \cos^2 \theta + \cos \theta - 1 = 0, 0^\circ \leq \theta \leq 360^\circ$