3.10 Trigonometric Equations and Inequalities

AP Precalculus Name: _____

CA #1

Solve each equation for $0 \leq \theta \leq 2\pi$. Find the exact value(s) using the unit circle

1. $2\sin\theta - 3 = -2$

2. $\cos^2\theta + \cos\theta = 0$

Solve each equation for $0 \leq x \leq 2\pi$. Find the approximate value(s) using a calculator.

3. $5 + 3\sin x = 7$

4. $\tan^2 x - 3\tan x = 10$

Solve each equation. Find ALL exact value(s) using the unit circle

5. $3 = 1 - 2\cos(2x)$

6. $4\sin^2\theta - 1 = 2$

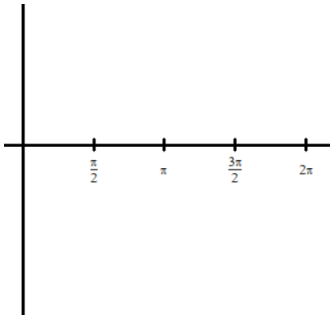
Solve each equation. Find ALL approximate value(s) using a calculator.

7. $5 - 4\cos\theta = 6$

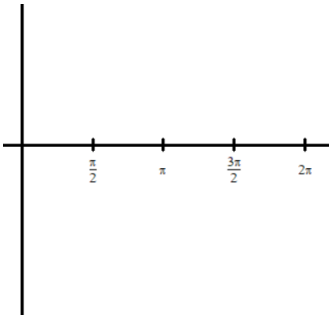
8. $\tan^2 x = 3\tan x$

Solve each inequality for $0 \le x \le 2\pi$. Find the exact value(s). Include a rough sketch.

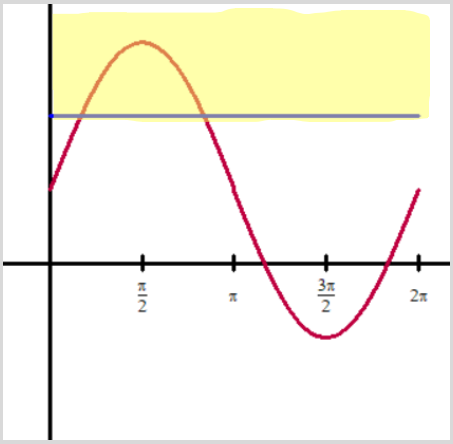
9. $2\sin x + 1 > 2$



10. $2\cos x \le -\sqrt{2}$



Answers to 3.10 CA #1

1. $\theta = \frac{\pi}{6}$ and $\theta = \frac{5\pi}{6}$	2. $\theta = \frac{\pi}{2}, \theta = \frac{3\pi}{2}$ and $\theta = \pi$	3. $x = 0.729$ and $x = 2.412$
4. $x = 1.373$ and $x = 4.514$ $x = 2.034$ and $x = 5.176$	5. $x = \frac{\pi+2\pi n}{2} = \frac{\pi}{2} + \pi n$ where n is an integer	6. $x = \frac{\pi}{3} + \pi n$ $x = \frac{2\pi}{3} + \pi n$ where n is an integer
7. $\theta = 1.823 + 2\pi n$ $\theta = 4.460 + 2\pi n$ where n is an integer	8. $\theta = 0 + \pi n$ $\theta = 1.249 + \pi n$ where n is an integer	
9. $\frac{\pi}{6} < x < \frac{5\pi}{6}$ 	10. $\frac{3\pi}{4} \le x \le \frac{5\pi}{4}$