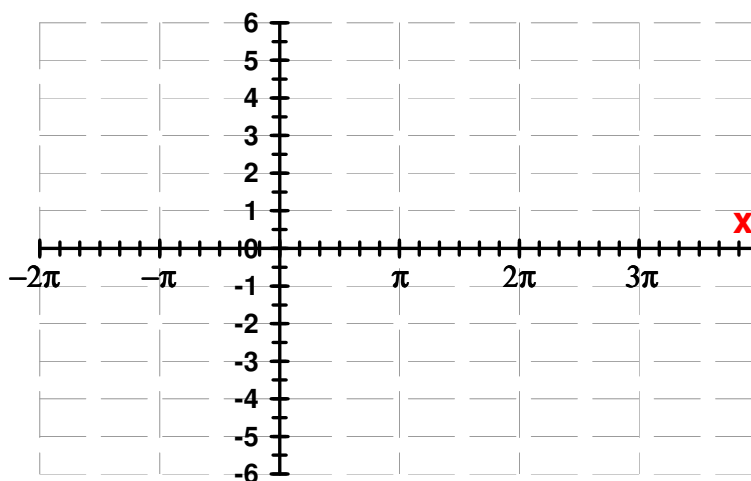


**MA40S PRE-CALCULUS**  
**UNIT C: TRIG IDENTS**  
**SOLVE TRIGONOMETRIC EQUATIONS**

Name: \_\_\_\_\_  
 Date: \_\_\_\_\_

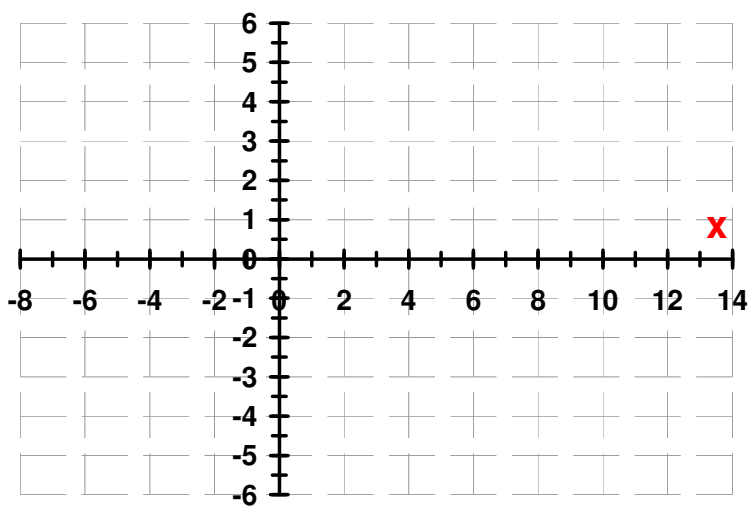
1. Graph the equation on the graph paper provided. Solve for angle  $x$  using algebra but check with your graph to see that it is close. Restrain answers to the given domain. Show work. Give exact answers where possible, otherwise just decimal radians to 3 places. A unit circle chart is attached at the end.

2.  **$2\cos(x) = 1$**  (constrain solutions to the domain  $-2\pi$  to  $2\pi$ . Give exact answers)



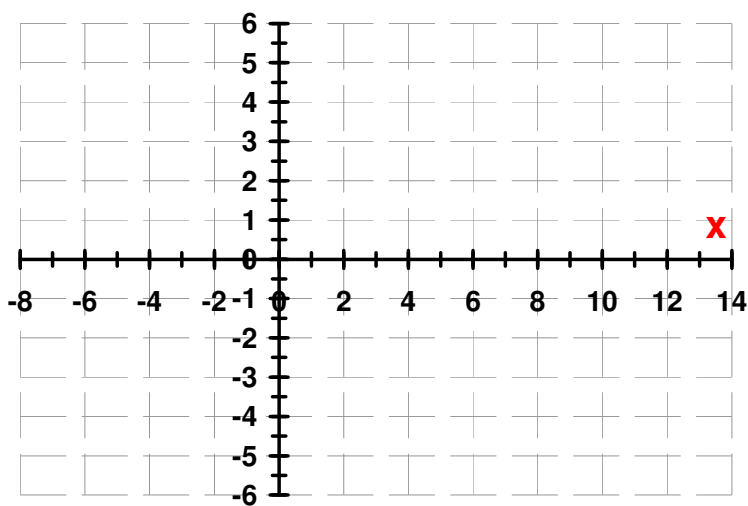
Ans:  $x = \pi/3$  and  $5\pi/3$

3.  $3\cos(x + 1) = -1$  (constrain solutions to the domain: 0 to  $2\pi$  [0 to 6.28])



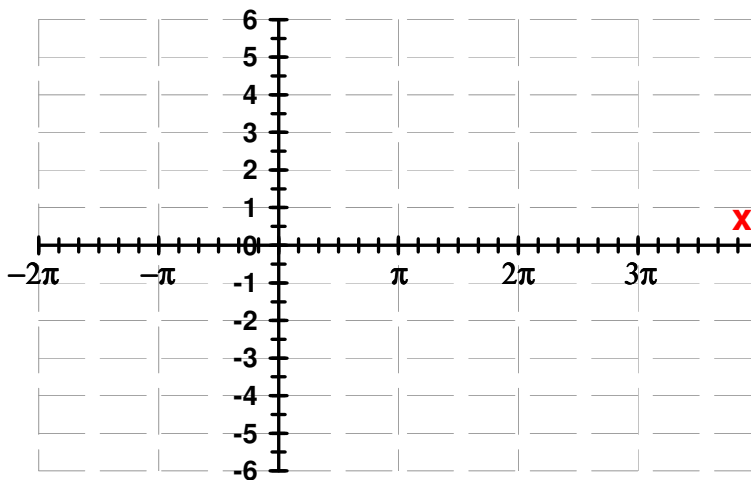
Ans:  $x = 0.91$  and  $3.37$

4.  $10\sin(0.5x - 2) + 5 = 12$  (constrain solutions to the domain  $-2\pi$  to  $2\pi$   $[-6.28$  to  $+6.28]$ )



Ans:  $x = -3.83$  and  $5.55$

5.  $\sqrt{3} \sec 2x = 2$  (constrain solutions to the domain 0 to  $2\pi$ .)

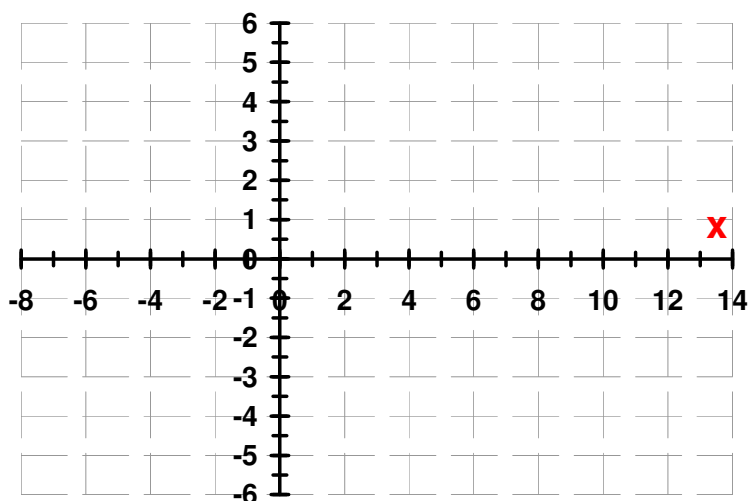


Ans:  $\pi/12$ ;  $11\pi/12$ ;  $13\pi/12$ ; and  $23\pi/12$ .

6. Solve the following trigonometric equation in quadratic form. Constrain your answers to the domain **0 to  $2\pi$** . You will likely need the quadratic formula:  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ , being the solutions to an equation in the form  $ax^2 + bx + c = 0$

$$12\sin^2 x - 11\sin x + 5 = 3$$

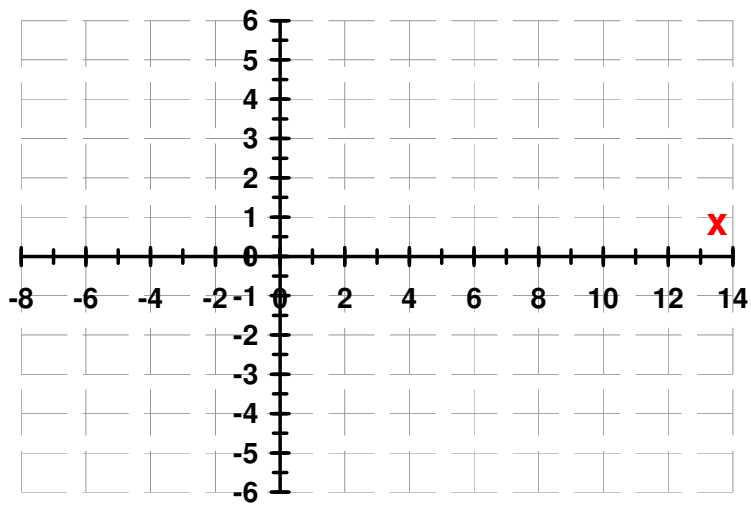
$$\text{or } 12\sin^2 x - 11\sin x + 2 = 0$$



Now this one will be really tough to sketch just out of your head! But it isn't necessary to sketch this one, just use algebra if you want. (or cheat and use a graphing tool). BTW: you will do lots of 'curve sketching' in university if you take calculus.

Ans: 0.253, 0.730, 2.412, 2.889 radians

7.  $4\tan x - 3 = 12$



Ans: 1.31 and 4.44 radians

