

PRECALCULUS QUIZ #1ne FALL 2023

Pg 1ne

I

① $2\cos(x) + 8 = 7$

* Isolate:

$$\Rightarrow 2\cos(x) = -1$$

$$\Rightarrow \cos(x) = -\frac{1}{2}$$

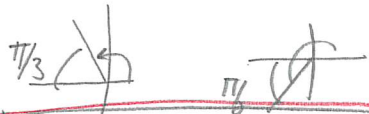
* Quadrant Check $\frac{S}{T} \frac{A}{C}$

QII, QIII $(\frac{1}{2}, \frac{\sqrt{3}}{2})$

* Ref x 

$$x_R = \pi/3$$

* SOLVE



$$x = 2\pi/3 \quad x = 4\pi/3$$

② $\tan(x) + 1 = 0$

* Isolate:

$$\Rightarrow \tan(x) = -1$$

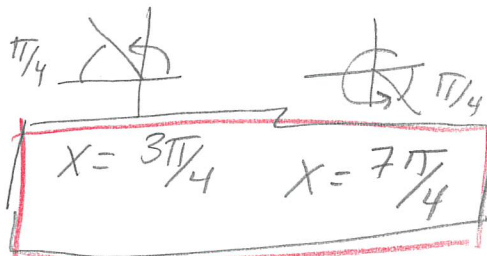
* Quad. check $\frac{S}{T} \frac{A}{C}$

QII QIII

* Ref x:

$$x_R = \pi/4$$

* Solve:



③ $3\sec(x) + 10 = 4$

* Isolate:

$$\Rightarrow 3\sec(x) = -6$$

$$\Rightarrow \sec(x) = -\frac{6}{3} = -2$$

* Reciprocal

$$\Rightarrow \cos(x) = -\frac{1}{2}$$

* Quad check:

QII QIII * SOLVE:

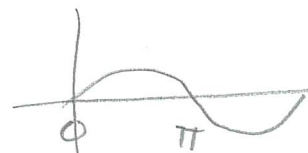
* Ref x

$$x_R = \pi/3$$

$$x = 2\pi/3 \quad x = 4\pi/3$$

④ $\sin(x) = 0$

* Quadrantal



$$\Rightarrow x = 0 \quad x = \pi$$

$$(5) 2\sin(x)\cos(x) + \cos(x) = 0$$

* Factor:

$$\Rightarrow \cos(x)(2\sin(x) + 1) = 0$$

$$\Rightarrow \cos(x) = 0 \quad \text{or} \quad 2\sin(x) + 1 = 0$$

* Quadrantal

* Isolate

$$\Rightarrow 2\sin(x) = -1$$

$$\Rightarrow \sin(x) = -1/2$$

~~$x = \pi/2, x = 3\pi/2$~~

or

$x = \pi/2, x = 3\pi/2$

* Quad. check: $\frac{S}{T} \frac{A}{C}$

QIII QIV

* Ref $\angle$:

$$x_R = \pi/6$$

* solve:

$$x = 7\pi/6, x = 11\pi/6$$

Sol

$$x = \pi/2, x = 3\pi/2$$

$$x = 7\pi/6, x = 11\pi/6$$

$$(6) 4.3\sin(x) + 2.1 = 3.9$$

* Isolate:

$$\Rightarrow 4.3\sin(x) = 1.8$$

$$\Rightarrow \sin(x) = \frac{1.8}{4.3}$$

$$= .4186...$$

* Quad. check $\frac{S}{T} \frac{A}{C}$

QI QII

* Ref $\angle$:

$$\Rightarrow \sin^{-1}(\sin(x_R)) = \sin^{-1}(.4186...)$$

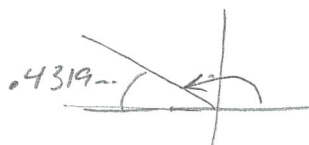
$$\Rightarrow x_R = \sin^{-1}(.4186...)$$

$$= .43190...$$

* Solve

$$QI: x \approx .432$$

$$QII: x \approx 2.710$$



$$x = \pi - .43190...$$

$$= 2.7096...$$