Check-Up problem...

Solve:

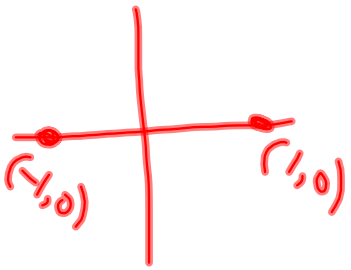
$\sin x \sec x + 2\sin x = 0 \ , \ x \in R$ (x is measured in radians)

$\sin x(\sec x + 2) = 0$

(y)

$\sin x = 0$

Quadrantal



$\theta = 0 + 2\pi k, k \in I$

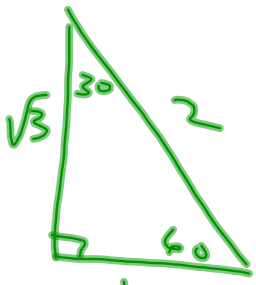
$\theta = \pi + 2\pi k, k \in I$

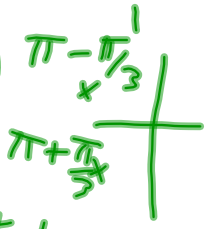
$\theta = 0 + \pi k, k \in I$

$\sec x = -2$

$\cos x = \frac{-1}{2}$

(Ref $\frac{\pi}{3}$, Q2,3)





$\theta = \frac{2\pi}{3} + 2\pi k, k \in I$

$\theta = \frac{4\pi}{3} + 2\pi k, k \in I$

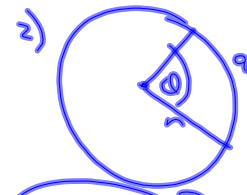
Unit Review...

UNIT TEST: Tuesday

What topics have we covered??

1) Converting: Degrees ⇔ Radians

$180° = \pi$ Rad

2) 

In Radians ONLY!!!

$\theta = \frac{a}{r}$

$C = 2\pi r$

$A = \pi r^2$

} Circles

3) Angular Velocity: $V_A = \frac{\theta_{Rotation}}{time}$

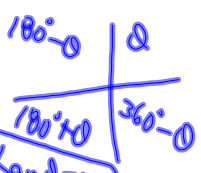
4) Rotation Angles

⇒ Positive & Negative Rotations (ccw) (cw)

⇒ Co-terminal Angles

⇒ Principal Angle

5) Reference Triangles



⇒ Trig. Ratios...

$\sin\theta = \frac{y}{r}$ $\cos\theta = \frac{x}{r}$ $\tan\theta = \frac{y}{x}$

3 Reciprocals!!

⇒* Unit Circle

⇒ Special Angles

30°, 60°, 45° Ref. ∠s

Quadrantals ⇒ Unit Circle

Trigonometric Equations...

⇒ Linear
⇒ Quadratic

} - Specific Domain
- General Solutions

Review...

C4 **a)** Determine all solutions for the equation $2\sin^2\theta = 1 - \sin\theta$ in the domain $0° \le \theta < 360°$.

b) Are your solutions exact or approximate? Why?

c) Show how you can check one of your solutions to verify its correctness.

$2\sin^2\theta+\sin\theta-1=0$

$2m^2+m-1=0$

$2m^2+2m-m-1=0$

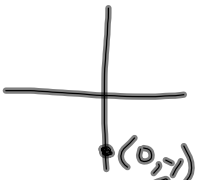
$2m(m+1)-1(m+1)=0$

$(m+1)(2m-1)=0$

$m=-1 \quad m=\frac{1}{2}$

$\sin\theta=-1$

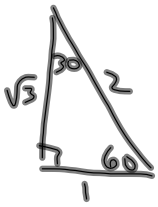
Quadrantal



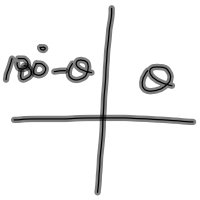
$\theta=270°$

$\sin\theta=\frac{1}{2}$ ←

(Ref $\angle$ 30°, Q1,2)



$\theta=30°, 150°$



(b) Exact ... No Rounding.

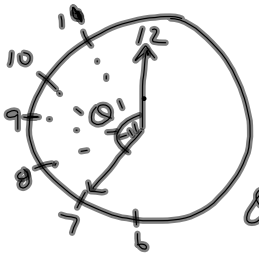
(c) $2(\sin 30°)^2 = 1-\sin 30°$

LS: $2\left(\frac{1}{2}\right)^2$ $\quad$ RS: $1-\frac{1}{2}$

$2\left(\frac{1}{4}\right)=\frac{1}{2}$ $\quad$ $=\frac{1}{2}$

LS=RS

A grandfather clock shows a time of 7 o'clock. What is the exact radian measure of the angle between the hour hand and the minute hand?



$\frac{2\pi \text{ Rad}}{12}$

$\frac{\pi}{6}$ Rad Between #'s

$\theta = 5\left(\frac{\pi}{6}\right) = \frac{5\pi}{6}$

Determine the angular velocity of the minute hand on a clock. (Rad/Sec)

1 Rotation every hour

$V_M = \frac{2\pi \text{ Rad}}{60 \text{ min}} \times \frac{1 \text{ min}}{60 \text{ sec}}$

$V_M = \frac{2\pi}{3600}$ Rad/sec

$V_M = \frac{\pi}{1800}$ Rad/sec

Solve: $6\sin^2\theta - 3\sin\theta = 0$, $0 \le \theta \le 360°$

[A] $0°, 30°, 180°, 330°, 360°$ [B] $0°, 30°, 180°, 150°, 360°$

[C] $30°, 90°, 120°, 270°$ [D] $0°, 180°, 210°, 330°, 360°$

$3\sin\theta(2\sin\theta - 1) = 0$

$3\sin\theta = 0$ $\quad \sin\theta = 0$

$\sin\theta = \frac{1}{2}$

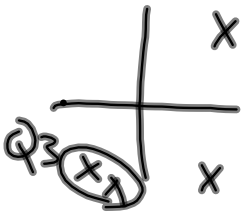
Ref $\angle$: $30°$; Q1, 2

$30°, 150°$

180° 0° 360°

If $\csc\theta < 0$ and $\tan\theta > 0$, then which of the following could be a possible measure of angle θ?

[A] $\frac{11\pi}{6}$ [B] $\frac{4\pi}{3}$ [C] $\frac{3\pi}{4}$ [D] $\frac{\pi}{2}$



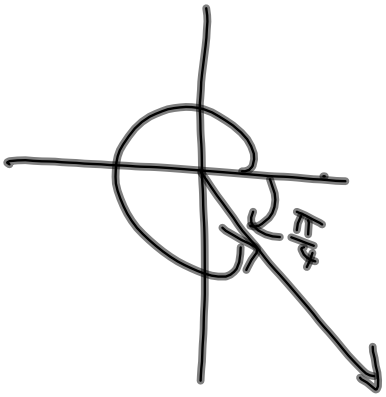
What is the principal angle of $-\frac{25\pi}{4}$?

[A] $\frac{3\pi}{4}$ [B] $\frac{\pi}{4}$ [C] $-\frac{\pi}{4}$ [D] $\frac{7\pi}{4}$

$-\frac{24\pi}{4} - \frac{\pi}{4}$

$-6\pi - \frac{\pi}{4}$

even



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1–6

Textbook Review

#12, 13, 14, 15, 16, 18, 20, 21, 23