

Do Now: From Review Sheet for Exam 3 #s 23-25

For 23 - 25, find θ to the nearest degree in the interval $0^\circ \leq \theta < 360^\circ$.

23. $5\cos\theta - 1 = 0$

24. $6\sin\theta + 2 = \sin\theta$

25. $\csc\theta + 8 = 3\csc\theta$

(23) $5\cos\theta - 1 = 0$

$$5\cos\theta = 1$$

$$\cos\theta = \frac{1}{5}$$

$$\{78^\circ, 282^\circ\}$$

ref \angle $\cos^{-1}\left(\frac{1}{5}\right) = 78.463\dots^\circ$

QI $\theta = 78.463\dots^\circ$

QIV $\theta = 360^\circ - 78.463\dots^\circ = 281.536\dots^\circ$

(24) $6\sin\theta + 2 = \sin\theta$

let $x = \sin\theta$

$$6x + 2 = x$$

$$2 = -5x$$

$$-\frac{2}{5} = x$$

$$\sin\theta = -\frac{2}{5}$$

ref \angle $\sin^{-1}\left(\frac{2}{5}\right) = 23.578\dots^\circ$

QIII $\theta = 180^\circ + 23.578\dots^\circ = 203.578\dots^\circ$

QIV $\theta = 360^\circ - 23.578\dots^\circ = 336.421\dots^\circ$

$$\{204^\circ, 336^\circ\}$$

(25)

$$\csc \theta + 8 = 3 \csc \theta$$

$$8 = 2 \csc \theta$$

$$4 = \csc \theta$$

$$\sin \theta = \frac{1}{4}$$

$$\sin^{-1}\left(\frac{1}{4}\right) = 14.477\dots^\circ$$

$$\text{QI } \theta = 14.477\dots^\circ$$

$$\text{QII } \theta = 180^\circ - 14.477\dots^\circ = 165.522\dots^\circ$$

$$\{14^\circ, 166^\circ\}$$

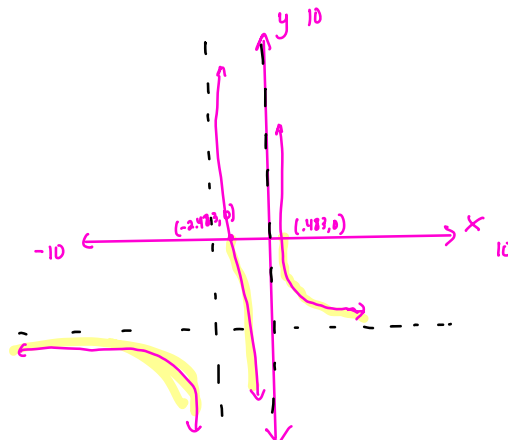
Exam 1A

$$\textcircled{7} \quad \frac{3}{x+3} + \frac{2}{x} \leq 5$$

$$\frac{3}{x+3} + \frac{2}{x} - 5 \leq 0$$

$$\text{PVA: } x = -3, 0$$

$$\text{EB: } y = 0 + 0 - 5 = -5$$



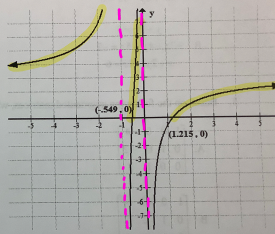
$$(-\infty, -3) \cup [-2.483, 0)$$

$$[.483, \infty)$$

⑩ From Exam 1A in calculator
2nd $\boxed{x^{-1}}$ math B: rref \rightarrow reduced row echelon form

ALPHA 2ndM
to put in matrix

Base your answer to question 6 on the accompanying graph of $y = \frac{3x-2}{x+1} \cdot \frac{2}{x}$



6. Which of the following is the solution set for $\frac{3x-2}{x+1} \cdot \frac{2}{x} > 0$?

- a. $(-\infty, -1) \cup (-0.549, 0) \cup (1.215, \infty)$
- b. $(-\infty, -1) \cup [-0.549, 0) \cup [1.215, \infty)$
- c. $(-1, -0.549) \cup (0, 1.215)$
- d. $(-1, -0.549) \cup (0, 1.215]$

Exam 3 B

(12) $\cos \theta + \tan \theta \sin \theta = \sec \theta$

$$\cos \theta + \frac{\sin \theta}{\cos \theta} \cdot \sin \theta$$

$$\cos \theta \frac{\cos \theta}{\cos \theta} + \frac{\sin^2 \theta}{\cos \theta}$$

$$\frac{\cos^2 \theta + \sin^2 \theta}{\cos \theta}$$

$$\frac{1}{\cos \theta}$$

$$\sec \theta = \sec \theta$$

A

$$\sin \theta + \cot \theta \cos \theta = \csc \theta$$

$$\sin \theta + \frac{\cos \theta}{\sin \theta} \cdot \cos \theta$$

$$\sin \theta \frac{\sin \theta}{\sin \theta} + \frac{\cos^2 \theta}{\sin \theta}$$

$$\frac{\sin^2 \theta + \cos^2 \theta}{\sin \theta}$$

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

$$\csc \theta = \csc \theta$$

A

(13) $2 \sin x + \sqrt{3} = 0$

$$| \downarrow y = \sin x$$

$$2y + \sqrt{3} = 0$$

$$2y = -\sqrt{3}$$

$$y = -\frac{\sqrt{3}}{2}$$

$$\sin x = -\frac{\sqrt{3}}{2}$$

$$\text{ref } \angle \sin^{-1}(\frac{\sqrt{3}}{2}) = 60^\circ$$

$$\text{QIII } x = 180^\circ + 60^\circ = 240^\circ$$

$$\text{QIV } x = 360^\circ - 60^\circ = 300^\circ$$

S	A
(+)	(-)

B

$$2 \sin x - \sqrt{3} = 0$$

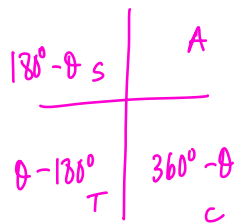
$$\sin x = \frac{\sqrt{3}}{2}$$

$$\text{ref } \angle: 60^\circ$$

$$\text{QI } 60^\circ$$

$$\text{QII } 120^\circ$$

To find ref θ



(11) B $\cos 315^\circ$

Q IV

R $360^\circ - 315^\circ = 45^\circ$

S +

T $+\cos 45^\circ = \frac{\sqrt{2}}{2}$

Format : 10 mc

6 free response
(some have mult. parts)

(14) A

$$\sqrt{2} \sec x - 2 = 0$$

$$\sqrt{2} \sec x = 2$$

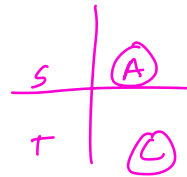
$$\sec x = \frac{2}{\sqrt{2}}$$

$$\cos x = \frac{\sqrt{2}}{2}$$

ref θ $\cos^{-1}(\frac{\sqrt{2}}{2}) = 45^\circ$

Q I $x = 45^\circ \cdot \frac{\pi}{180} = \frac{\pi}{4}$

Q IV $x = 360^\circ - 45^\circ = 315^\circ \cdot \frac{\pi}{180} = \frac{7\pi}{4}$



Pd. 8 Questions

Exam 1

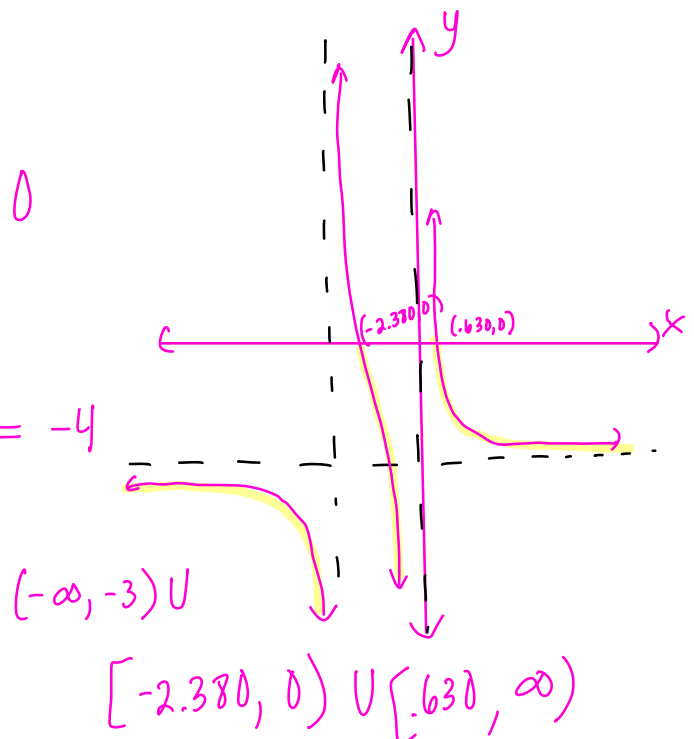
B

$$\textcircled{1} \quad \frac{3}{x+3} + \frac{2}{x} \leq 4$$

$$\frac{3}{x+3} + \frac{2}{x} - 4 \leq 0$$

$$\text{PVA: } x = -3, 0$$

$$\text{EB: } y = 0 + 0 - 4 = -4$$



Exam 2

8B $(1, -1)$ $(5, -4)$

$$\begin{bmatrix} x & y & 1 & x & y \\ 1 & -1 & 1 & 1 & -1 \\ 5 & -4 & 1 & 5 & -4 \end{bmatrix}$$

$$\det = -x + 5y - 4 - (-5 - 4x + y)$$

$$\det = 3x + 4y + 1$$

$$\text{eq. of line: } 3x + 4y + 1 = 0$$

Exam 3

6a) $(\sec^2 \theta)(\cot^2 \theta)(\sin \theta)$

$$\frac{1}{\cos^2 \theta} \cdot \frac{\cos^2 \theta}{\sin^2 \theta} \cdot \sin \theta = \frac{1}{\sin \theta} = \csc \theta$$

14 B

$$\sqrt{2} \sec x + 2 = 0$$

$$\sqrt{2} \sec x = -2$$

$$\sec x = -\frac{2}{\sqrt{2}}$$

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

$$\left\{ \frac{3\pi}{4}, \frac{5\pi}{4} \right\}$$

ref $\angle \cos^{-1}(\sqrt{2}/2) = 45^\circ$

S	A
T	C

QII $x = 180^\circ - 45^\circ = 135^\circ \cdot \frac{\pi}{180^\circ} = \frac{3\pi}{4}$

QIII $x = 180^\circ + 45^\circ = 225^\circ \cdot \frac{\pi}{180^\circ} = \frac{5\pi}{4}$

13A

$$2 \sin x + \sqrt{3} = 0$$

let $y = \sin x$

$$2y + \sqrt{3} = 0$$

$$2y = -\sqrt{3}$$

$$y = -\frac{\sqrt{3}}{2}$$

$$\sin x = -\frac{\sqrt{3}}{2}$$

$$\{ 240^\circ, 300^\circ \}$$

ref $\angle \sin^{-1}(\sqrt{3}/2) = 60^\circ$

S	A
T	C

QIII $x = 180^\circ + 60^\circ = 240^\circ$

QIV $x = 360^\circ - 60^\circ = 300^\circ$