

[EXAM II REVIEW]

DISCLAIMER: THIS IS NOT A PRACTICE TEST! IT'S ONLY PURPOSE IS TO KICK START YOUR OWN REVIEW. I CREATE MY TEST BASED ON 3 THINGS:

- i) NOTES
- ii) HOMEWORK
- iii) REVIEW

USE ALL THREE TO CONDUCT YOUR STUDY. I DECIDED NOT TO GIVE YOU MY IDENTITIES, SO YOU'LL DEFINITELY WANT THEM ON YOUR NOTE CARD! I WILL PROVIDE YOU W/ A UNIT CIRCLE.

[1] VERIFY THE IDENTITY (PROOFS) - INCLUDE JUSTIFICATIONS!

$$(a) \frac{\sec \theta}{\tan \theta} - \frac{\tan \theta}{\sec \theta} = \cos \theta \cot \theta$$

$$(b) (\cos \theta + \sin \theta)^2 + (\cos \theta - \sin \theta)^2 = 2$$

$$(c) \cos^4 x - \sin^4 x = \cos 2x$$

$$(d) (1 + \tan t)^2 = \sec^2 t + 2 \tan t$$

$$(e) \cos^4 x - \sin^4 x = \cos 2x$$

$$(f) \sec 2x = \frac{1}{2\cos^2 x - 1}$$

$$(g) \frac{1 + \cos \theta}{\sin \theta} + \frac{\sin \theta}{1 + \cos \theta} = 2 \csc \theta$$

$$(h) \tan \frac{x}{2} = \frac{1 - \cos x}{\sin x}$$

[2] SOLVE EACH EQUATION FOR $\theta \in [0, 2\pi)$... OR $t \in [0, 2\pi)$

(a) $2 \cos t - 1 = 0$

(b) $2 \sin^2 t + \sin t - 3 = 0$

(c) $\sin 2t + 3 \cos t = 0$

(d) $2 \cot^2 t + \sin t - \cot^2 t = 0$

(e) $\sin^{-1} 2x = -\frac{\pi}{4}$

(f) $2 \sin 2t = \sqrt{3}$

[3] EVALUATE

(a) $\sin(2 \tan^{-1} \frac{3}{4})$

(b) $\cos(2 \sin^{-1} \frac{1}{2})$

[4] Let $\sin \theta = \frac{4}{5}$ & $\tan \theta = -\frac{4}{3}$. FIND $\sin 2\theta$, $\cos 2\theta$, $\tan 2\theta$.

[5] If $\cos \alpha = \frac{3}{5}$ & $\cos \beta = \frac{12}{13}$ with α & β ARE IN QUADRANT I.

FIND:

i) $\cos(\alpha + \beta)$

ii) $\sin(\alpha + \beta)$

iii) $\tan(\alpha + \beta)$

[6] USE HALF ANGLE FORMULAS TO FIND EXACT VALUES

FOR:

(a) $\cos(105^\circ)$

(b) $\sin\left(\frac{\pi}{12}\right)$

[7] FIND THE REFERENCE ANGLES FOR

i) $\theta = 240^\circ$

iii) $320^\circ = \theta$

ii) $\theta = \frac{9\pi}{7}$

iv) $\theta = -\frac{7\pi}{6}$

[8] SOLVE $\cot t + t + 5 = 6$ FOR ALL VALUES OF t .

[9] SOLVE THE TRIANGLE, IF POSSIBLE. APPROXIMATE VALUES TO NEAREST 10th IF APPROPRIATE.

(a) $\alpha = 32^\circ$, $\beta = 55^\circ$, $b = 12$ (ASA)

(b) $\alpha = 20^\circ$, $b = 9$, $a = 7$ (SSA - AMBIGUOUS CASE)

(c) $a = 13.5$, $\alpha = 46^\circ$, $c = 27.8$ (SSA - AMBIGUOUS CASE)

(d) $b = 10$, $\beta = 30^\circ$, $c = 20$ (SSA - AMBIGUOUS CASE)

[10] TO FIND THE DISTANCE BETWEEN TWO POINTS A & B ON OPPOSITE SIDES OF A LAKE, A SURVEYOR DETERMINES THAT $AC = 97.3$ FT, ANGLE AT VERTEX C IS 55.1° , & ANGLE AT VERTEX A IS 75.7° . FIND DISTANCE FROM A TO B.

