

King Fahd University of Petroleum and Minerals

Prep-Year Math Program

Math 002 - Term 132

Recitation (7.4)

Question 1:

If $\sec x = \frac{5}{4}$, where $\frac{3\pi}{2} < x < 2\pi$, then find $\tan 2x$, $\cos \frac{x}{2}$.

Answer: (a): $\tan 2x = -\frac{24}{7}$ (b): $\cos \frac{x}{2} = -\frac{3\sqrt{10}}{10}$

Question 2 If $\sin \frac{\alpha}{2} = \frac{4}{5}$ and α terminates in quadrant III, then find $\sin \alpha + \cos \alpha$

Answer: $-\frac{31}{25}$

Question 3: Find the exact value of: (a): $\left(\sin \frac{5\pi}{8} - \cos \frac{5\pi}{8} \right)^2$ (b): $\sin \frac{3\pi}{8} \cos \frac{5\pi}{8}$

Answer: (a): $\frac{2 + \sqrt{2}}{2}$ (b): $-\frac{\sqrt{2}}{4}$

Question 4: $\frac{\sin x - \sin 2x}{\cos x + \cos 2x} =$

(a): $-\tan \frac{x}{2}$ (b): $\tan \frac{x}{2}$ (c): $-\cot \frac{x}{2}$ (d): $\cot \frac{x}{2}$ (e): $\frac{1 + \cos x}{2}$

Answer: $-\tan \frac{x}{2}$

Question 5 $\tan 427.5^\circ =$

- A) $\sqrt{2} + 1$
- B) $\frac{1 - \sqrt{3}}{2}$
- C) $\sqrt{2} - 1$
- D) $\sqrt{3} + 2$
- E) $\frac{2 - \sqrt{2}}{2}$

Answer: $\sqrt{2} + 1$