

Key

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Exam 3 (A) Math19

Part 1

Choose the BEST of the answers provided by circling the letter of your choice. You DO NOT have to show your work. (4 pts each)

1. A function having the period π is: $P = \frac{2\pi}{\pi} = 2$

(A) $y = \sin(2x)$ (B) $y = \frac{1}{2} \cos(x)$ (C) $y = \tan(\frac{1}{2}x)$
 (D) $y = 2\cos(x)$ (E) None of these

2. Let $y = \cos(\arctan x)$. What is the range of y ? $-\frac{\pi}{2} < \arctan x < \frac{\pi}{2}$

(A) $0 < y \leq 1$ (B) $0 \leq y \leq 1$ (C) $-1 \leq y \leq 1$
 (D) $-1 < y < 1$ (E) $-\frac{\pi}{2} < y < \frac{\pi}{2}$ (F) None of these

3. Simplify $\frac{\sin^2 x - 1}{1 + \sin x} = \frac{(\sin x - 1)(\sin x + 1)}{(1 + \sin x)} = \sin x - 1$

(A) $\cos x + 1$ (B) $-\sin x$ (C) $1 - \cos x$ (D) $\sin x - 1$

4. Simplify $\frac{\cot(-\theta)}{1 + \cot^2(-\theta)} = \frac{-\cot \theta}{1 + \cot^2 \theta} = \frac{-\cot \theta}{\csc^2 \theta} = -\frac{\cos \theta}{\sin \theta} \cdot \frac{\sin^2 \theta}{\sin \theta} = -\cos \theta \cdot \sin \theta$

(A) $\frac{1}{\sin \theta + \cos \theta}$ (B) $\frac{1}{\cos \theta - \sin \theta}$ (C) $\sin \theta$ (D) $-\sin \theta$
 (E) $\cos \theta$ (F) $-\cos \theta$ (G) $(\sin \theta)(\cos \theta)$ (H) $-(\sin \theta)(\cos \theta)$ (I) None of these

5. Simplify $\frac{\csc^2 \theta + \sec^2 \theta}{\csc \theta \cdot \sec \theta} - \tan \theta = \frac{\csc^2 \theta + \sec^2 \theta}{\csc \theta \cdot \sec \theta} - \frac{\sec \theta}{\csc \theta} = \frac{\csc^2 \theta + \sec^2 \theta - \sec^2 \theta}{\csc \theta \cdot \sec \theta} = \frac{\csc \theta}{\sec \theta} = \cot \theta$

(A) 1 (B) -1 (C) $\cot \theta$ (D) $\tan \theta$ (E) $\cos \theta$ (F) none of these