JEE Advanced Questions Based on Most Repeated Concepts of Trigonometry

Q: If A + B + C = 180^0 then the value of tan A + tan B + tan C is

Q: If α = $\cos^{-1}$ (⅗), β = tan -1 (⅓), where 0< α, β<π/2, then α - β is

Q: The number of values of θ in the interval (-π/2, π/2) such that θ ≠ nπ/5 for n = 0, ±1, ±2 and tan θ = cot 5θ as well as sin 2θ = cos 4θ

Q: The value of $\tan 6^0 \tan 42^0 \tan 66^0 \tan 78^0$ is

Q: The positive integer value of n>3 satisfying the equation 1/sin(π/n) = 1/sin(2π/n) + 1/sin(3π/n)

Q: Considering only the principal values of inverse functions, the set A = {x≥0: tan -1 (2x) + tan -1 (3x) = π/4}

Q: Let the function f: (0, π) → R be defined by f(θ) = (sin θ + cos θ) 2 + (sin θ - cos θ) 4 . Suppose, the function f has a local minimum at θ precisely when θ ∈ {λ_1 π, … , λ_r π}, where 0 < λ_1< ··· < λ_r < 1.Then the value of λ_1 + ··· + λ_r is

Q: Let a, b, c be three non zero real numbers such that the equation √3a cos x + 2b sin x = c, x belongs to [-π/2, π/2] has two distinct roots α and β with α + β = π/3. Then the value of b/a is

Q: The value of √3 $\operatorname{cosec} 20^0$ - $\sec 20^0$ is equal to

Q: If f(x) = 2 $\tan^{-1}$x + $\sin^{-1}$ (2x/(1+x^2)), x>1, then f(5) is equal to

Q: The principal value of $\tan^{-1}$ (cot 43π/4) is

Q: If α = 3 $\sin^{-1}$ (6/11) and β = 3 $\cos^{-1}$ (4/9), where the inverse trigonometric functions take only the principal values, then the correct option(s) is (are)

Q: If √2 sin α/√(1 + cos 2α) = 1/7 and √((1 - cos 2β)/2) = 1/√10, α, β ∈ (0, π/2), then tan (α + 2β) is equal to

Q: The value of tan -1 [(√(1+x^2) + √(1-x^2))/(√(1+x^2) - √(1-x^2))], |x| < ½, x ≠ 0, is equal to

Q: The principal value of $\sin^{-1}$ (sin 2π/3) is

Q: A possible value of tan (¼ $\sin^{-1}$ √63/8) is:

Q: If S is the sum of the first 10 terms of the series $\tan^{-1}(⅓) + \tan^{-1}(1/7) + \tan^{-1}(1/13) + \tan^{-1}(1/21) + \ldots$, then tan S is equal to

Q: For $x \in (0, \pi)$, the equation $\sin x + 2 \sin 2x - \sin 3x = 3$ has

Q: If $5(\tan^2 x - \cos^2 x) = 2\cos 2x + 9$, then the value of cos 4x is :

Q: The solution of the equation $\tan \theta . \tan 2\theta = 1$ is

Q: If $\sin \theta = 3 \sin(\theta + 2\alpha)$, then the value of $\tan(\theta + \alpha) + 2 \tan \alpha$ is

Q: The number of distinct solutions of equation $(5/4)\cos^2 2x + \cos^4 x + \sin^4 x + \cos^6 x + \sin^6 x = 2$ in the interval $[0, 2\pi]$ is

Q: For what and only what values of α lying between 0 and π is the inequality $\sin \alpha \cos^3 \alpha > \sin^3 \alpha \cos \alpha$ valid?