

Date Planned : __ / __ / __	Daily Tutorial Sheet – 11	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level – 2	Exact Duration: _____

131. In a $\triangle PQR$, if $3\sin P + 4\cos Q = 6$ and $4\sin Q + 3\cos P = 1$, then the angle R is equal to :

- (A) $\frac{\pi}{4}$ (B) $\frac{3\pi}{4}$ (C) $\frac{5\pi}{3}$ (D) $\frac{\pi}{6}$ 

132. If $U_n = \sin n\theta \cdot \sec^n \theta$, $V_n = \cos n\theta \cdot \sec^n \theta$ for $n = 0, 1, 2, \dots$ then $V_n - V_{n-1} + U_{n-1} \tan \theta =$

- (A) 0 (B) 1 (C) $\sin \theta$ (D) $\cos \theta$

133. If $\sin x + \cos x + \tan x + \cot x + \sec x + \csc x = 7$ and $\sin 2x = a - b\sqrt{7}$, then ordered pair (a, b) can be :

- (A) (6, 2) (B) (8, 3) (C) (22, 8) (D) (11, 4) 

134. If $\sin^2 A = x$, then $\sin A \sin 2A \sin 3A \sin 4A$ is a polynomial in x , the sum of whose coefficients is :

- (A) 0 (B) 40 (C) 168 (D) 336

135. $\frac{1}{\cos \alpha + \cos 3\alpha} + \frac{1}{\cos \alpha + \cos 5\alpha} + \dots + \frac{1}{\cos \alpha + \cos (2n+1)\alpha} =$

- (A) $\cos \alpha \left[\tan(n+1)\alpha - \tan \alpha \right]$ (B) $\sec \alpha \left[\tan(n+1)\alpha - \tan \alpha \right]$
(C) $\frac{1}{2} \sec \alpha \left[\tan(n+1)\alpha - \tan \alpha \right]$ (D) $\frac{1}{2} \cos \alpha \left[\tan(n+1)\alpha - \tan \alpha \right]$ 

136. The range of $\log_{\sqrt{5}} \left[\sqrt{2}(\sin x - \cos x) + 3 \right]$ is :

- (A) [0, 2] (B) [1, 2] (C) [0, 3] (D) [1, 3]

*137. The equation $3^{\sin 2x + 2\cos^2 x} + 3^{1 - \sin 2x + 2\sin^2 x} = 28$ is satisfied for the values of x given by :

- (A) $\cos x = 0$ (B) $\sin x = -1$
(C) $\tan x = 1$ (D) $\tan x = -1$

138. If $4^{\sin 2x + 2\cos^2 x} + 4^{1 - \sin 2x + 2\sin^2 x} = 65$, then $(\sin 2x + \cos 2x)$ has the value equal to :

- (A) -1 (B) 2 (C) $\sqrt{2}$ (D) 1

139. If $\sin^{10} x - \cos^{10} x = 1$ then $x =$

- (A) $n\pi$ (B) $2n\pi + \frac{\pi}{4}$ (C) $\frac{(2n+1)\pi}{2}$ (D) $\frac{n\pi}{2}$

140. If $\sin \left[\frac{\pi}{4} \cot \theta \right] = \cos \left[\frac{\pi}{4} \tan \theta \right]$ then θ can be:

- (A) $n\pi + \frac{\pi}{2}$ (B) $n\pi + \frac{\pi}{4}$ (C) $n\pi - \frac{\pi}{4}$ (D) $n\pi + \frac{\pi}{3}$ 