* $\frac{\cos^4 x}{\cos^2 y} + \frac{\sin^4 x}{\sin^2 y}$ = 1 then
    a) 0
    b) 1
    c) -1
    d) 2

    Ans : b)

* The Value of tan $\pi/8$ is
    a) $\frac{1}{2}$
    b) √2 + 1
    c) $\frac{1}{\sqrt{2}+1}$
    d) 1-√2

    Ans : c)

* Value of x $\in$ (0 , π) which satisfy sin x $\sqrt{8\ cos^2 x}$ = 1 are in A.P whose common difference
    a) $\frac{\pi}{4}$
    b) $\frac{\pi}{8}$
    c) $\frac{\pi}{2}$
    d) $\frac{2\pi}{3}$

    Ans : a)

* Gen solution to tan θ + cot θ = 2 is
  a) $\frac{n\pi}{2} + (-1)^n \frac{\pi}{8}$
  b) $\frac{n\pi}{2} + (-1)^n \frac{\pi}{4}$
  c) $\frac{n\pi}{2} + (-1)^n \frac{\pi}{6}$
  d) $\frac{n\pi}{2} + (-1)^n \frac{\pi}{3}$

  Ans : b)

* Number of real solutions to $cos^7 x + sin^4 x$ = 1 in [-π, π] are
  a) 0
  b) 3
  c) 4
  d) 6

  Ans : b)

* tan 1^0 + tan 89^0 = ...
  a) 2 cosec 2^0
  b) 2 cosec 1^0
  c) Cosec 2^0
  d) Cosec 1^0

  Ans : a)

* $x + y + z = \pi$, $\tan x \tan y = 2$
  $\tan x + \tan y + \tan z = 6$ then
  a) $\tan^{-1}(3)$
  b) $\tan^{-1}(2)$
  c) $\pi/3$
  d) $\pi/4$

  Ans : a)

* A : $\tan(\pi \tan x) = \cot(\pi \cot x)$
  B : $\sin x + \cos x = 3/2$ then.

  a) A has a solution.
  b) B has a solution.
  c) Both A, B has solutions.
  d) Neither A nor B has solutions.

  Ans : d)

* Number of integral solutions of K for which $7\cos x + 5\sin x = 2K+1$ has a solution is
  a) 4
  b) 8
  c) 10
  d) 12

  Ans : b)

* Number of solutions to $(\sin^{-1}(x))^3 + (\cos^{-1}(x))^3 = 2\pi^3$ is
    a) 0
    b) 1
    c) 2
    d) ∞

    Ans : a)

* If x ∈ {p} , p ∈ R & $[\sin^{-1}(x) + (\cos^{-1}(x)] - tan^{-1}(x)$ ranges between
    a) $\left(\frac{\pi}{4}, \frac{\pi}{2}\right)$

    b) $\left(0, \frac{\pi}{2}\right)$

    c) $\left(0, \frac{\pi}{4}\right)$
    d) R

    Ans : a)

* $3\cos^{-1}(x) - \pi x - {}^{\pi}/_{2} = 0$ has
    a) One solution.
    b) 2 solutions.
    c) 3 solutions.
    d) ∞ Solutions.

    Ans : a)

* Range of $\tan^{-1}\left[\frac{2x}{1+x^2}\right]$ is

a) $\left[\frac{-\pi}{4}, \frac{\pi}{4}\right]$

b) $\left[\frac{-\pi}{2}, \frac{\pi}{2}\right]$

c) $\left[\frac{-\pi}{2}, \frac{\pi}{4}\right]$

d) $\left[\frac{-\pi}{4}, \frac{\pi}{2}\right]$

Ans : a)

* The value of $\operatorname{cosec}\theta$ if $2\cos\theta+2\sqrt{2}=3\sec\theta$, $\theta\in[0,2\pi]$

a) $\sqrt{2}$

b) 1

c) $\frac{2}{\sqrt{3}}$

d) $\frac{1}{2}$

Ans : a)

* Number of real solutions to $\cos^7 x + \cos^4 x = 1$ in $[-\pi, \pi]$ are

a) 0

b) 3

c) 4

d) 6

Ans : b)

* Gen solution for x satisfying $2\cot^2 x + 2\sqrt{3}\cot x + 4\operatorname{cosec} x + 8 = 0$
  a) $n\pi - \frac{\pi}{6}$
  b) $n\pi + \frac{\pi}{6}$
  c) $2n\pi - \frac{\pi}{6}$
  d) $2n\pi + \frac{\pi}{6}$

  Ans : c)

* Xi [i = 1,2,3,4] are the roots of $\frac{sin3x+cosx}{cos3x+sinx} = 1$ then $\sum x_i$ if $x \in [0, 2\pi)$
  a) $\frac{9\pi}{4}$
  b) $\frac{4\pi}{9}$
  c) $\frac{9\pi}{5}$
  d) $\frac{5\pi}{9}$

  Ans : a)

* $\sin^{-1}(x) + \sin^{-1}(y) + \sin^{-1}(z) = \frac{3\pi}{2}$ then
  $x^{100} + y^{100} + z^{100} + \frac{1}{x^{100}} + \frac{1}{y^{100}} + \frac{1}{z^{100}}$
  a) 6
  b) 1
  c) 2
  d) 3

  Ans : a)