ALGEBRA

1. $\left(\sec^2 \theta - 1\right)\left(\csc^2 \theta - 1\right)$ is equal to:

   (a) -1
   (b) 1
   (c) 0
   (d) 2

2. The roots of the equation $x^2 + 3x - 10 = 0$ are:

   (a) 2,-5
   (b) -2,5
   (c) 2,5
   (d) -2,-5

3. If α , β are zeroes of the polynomial $x^2 - 1$,then value of $(\alpha + \beta)$ is:

   (a) 2
   (b) 1
   (c) -1
   (d) 0

4. If α,β are the zeroes of the polynomial $p(x) = 4x^2 - 3x - 7$,then $\left(\frac{1}{\alpha} + \frac{1}{\beta}\right)$ is equal to:

   (a) $\frac{7}{3}$
   (b) $\frac{-7}{3}$
   (c) $\frac{3}{7}$
   (d) $\frac{-3}{7}$

5. Find the sum and product of the roots of the quadratic equation $2x^2 - 9x + 4 = 0$.

6. Find the discriminant of the quadratic equation $4x^2 - 5 = 0$ and hence comment on the nature of roots of the equation.

7. Evaluate $2\sec^2 \theta + 3\csc^2 \theta - 2\sin \theta \cos \theta$ if $\theta=45°$

8. If $\sin \theta - \cos \theta = 0$,then find the value of $\sin^4 \theta + \cos^4 \theta$