Algebra assignment

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Questions

1. If α and β are the zeroes of the quadratic polynomial $p(x) = x^2 - ax - b$, then the value of $\alpha^2 + \beta^s$ is :

   (a) $a^2 - 2b$

   (b) $a^2 + 2b$

   (c) $b^2 - 2a$

   (d) $b^2 + 2a$

2. Assertion(A): The polynomial $p(x) = x^2 + 3x + 3$ has two real zeroes. Reason(R): A quadratic polynomial can have at most two real zeroes.

3. (a) If $4\cot^2 45° - \sec^2 60° + \sin^2 60° + p = \frac{3}{4}$, then find the value of p.
   OR

   (b) If $cosA + cos^2A = 1$,then find the value of $sin^2A + sin^4A$.

4. Prove that:
   $[\frac{1}{cos\theta} - cos\theta][\frac{1}{sin\theta} - sin\theta] = \frac{1}{tan\theta + cot\theta}$

5. The value of k for which the pair of equations $kx = y + 2$ and $6x = 2y + 3$ has infinitely many solutions,

   (a) is$k = 3$

   (b) does not exist

   (c) is $k = -3$

(d) is $k = 4$

6. If $2tanA = 3$, then the value of $\frac{4sinA+3cosA}{4sinA-3cosA}$ is

   (a) $\frac{7}{\sqrt{13}}$

   (b) $\frac{1}{\sqrt{13}}$

   (c) 3

   (d) does not exist

7. If α,β are the zeroes of a polynomial $p(x) = x^2 + x - 1$, then $\frac{1}{\alpha} + \frac{1}{\beta}$ equals to

   (a) 1

   (b) 2

   (c) -1

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