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– Grade XI

1 Solve the equation,

$$\sqrt{x+5}+\sqrt{16-x^2}=x^2-25$$

2 Sides of a triangle form an arithmetic sequence with common difference 2, and its area is 6 cm ^{2}. Find its
sides.

3 In a right ΔABC ($\angle C=90^\circ$), CD is the height. Let r_1 and r_2 be the radii of inscribed circles of ΔACD and ΔDCB. Find the radius of inscribed circle of ΔABC

4 Solve the equation,

$$\sin(\pi\log x)+\cos(\pi\log x)=1$$

5 Prove that if the angles α and β satisfy $\sin(\alpha+\beta)=2\sin\alpha$,
Then

$$\alpha<\beta$$