Assignment 1 ICSE 10 2017

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9.c Prove that

$$\frac{sin\theta - 2sin^3\theta}{2cos^3\theta - cos\theta} = tan\theta$$

Solution:

Consider L.H.S side of given equation

$$= \frac{sin\theta(1 - 2sin^2\theta)}{cos\theta(2cos^2\theta - 1)} \tag{1}$$

But

$$cos2\theta = 2cos^2\theta - 1 \tag{2}$$

$$cos2\theta = 1 - 2sin^2\theta \tag{3}$$

implies

$$= \frac{sin\theta cos2\theta}{cos\theta cos2\theta} \tag{4}$$

$$= tan\theta \tag{5}$$

L.H.S=R.H.S
Hence Proved