9.c Prove

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

Solution:

$$= \frac{\sin\theta(1 - 2\sin^2\theta)}{\cos\theta(2\cos^2\theta - 1)} \qquad (0.0.1)$$

But

$$\cos 2\theta = 2\cos^2\theta - 1 \qquad (0.0.2)$$

$$\cos 2\theta = 1 - 2\sin^2\theta \qquad (0.0.3)$$

implies

$$= \frac{\sin\theta\cos 2\theta}{\cos\theta\cos 2\theta} \qquad (0.0.4)$$

$$= \tan\theta \qquad (0.0.5)$$