

Math 2215 - Calculus 1

Quiz #9 - 2016.09.14

Solutions

Compute the following derivative:

$$\frac{d}{d\theta} \sin(\cos(\tan(2\theta)))$$

$$\begin{aligned} \frac{d}{d\theta} \sin(\cos(\tan(2\theta))) &= \cos(\cos(\tan(2\theta))) \cdot \frac{d}{d\theta} \cos(\tan(2\theta)) \\ &= \cos(\cos(\tan(2\theta))) \cdot (-\sin(\tan(2\theta))) \cdot \frac{d}{d\theta} \tan(2\theta) \\ &= -\cos(\cos(\tan(2\theta))) \cdot \sin(\tan(2\theta)) \cdot \sec^2(2\theta) \cdot \frac{d}{d\theta} 2\theta \\ &= -\cos(\cos(\tan(2\theta))) \cdot \sin(\tan(2\theta)) \cdot \sec^2(2\theta) \cdot 2 \\ &= -2 \cos(\cos(\tan(2\theta))) \cdot \sin(\tan(2\theta)) \cdot \sec^2(2\theta) \end{aligned}$$