10. Given that  $\theta$  is measured in radians, prove, from first principles, that the derivative of  $\sin \theta$  is  $\cos \theta$ 

You may assume the formula for  $\sin(A \pm B)$  and that as  $h \to 0$ ,  $\frac{\sin h}{h} \to 1$  and  $\frac{\cos h - 1}{h} \to 0$ 

Total may assume the formula for 
$$sin(A \pm B)$$
 and that as  $n \to 0$ ,  $\frac{1}{h} \to 1$  and  $\frac{1}{h} \to 0$