Math 181 Honors Quiz 6 Version A

1. Find the following derivatives using any method:

(i) $\frac{d}{dx}(x^5)$

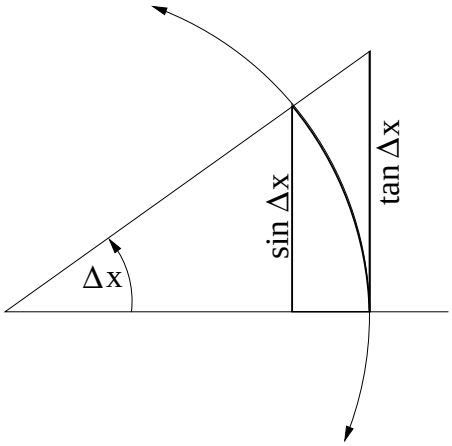
(ii) $\frac{d}{dx}(x^2 + 3x - 5)$

(iii) $\frac{d}{dx}\left(\frac{1}{x^2+1}\right)$

(iv) $\frac{d}{dx}(x^2\sqrt{x^2+1})$

Math 181 Honors Quiz 6 Version A

2. Show that $\dfrac{\sin \Delta x}{\Delta x} \to 1$ as $\Delta x \to 0$ using estimates based on the geometric figure



3. Use above result to show that $\dfrac{1 - \cos \Delta x}{\Delta x} \to 0$ as $\Delta x \to 0$.