

Math 181 Quiz 7 Version A

1. Explain why $\frac{d}{dx} \arctan x = \frac{1}{1+x^2}$ using the calculus rule $\frac{d}{dx} f^{-1}(x) = \frac{1}{f'(f^{-1}(x))}$ for differentiating the inverse function and trigonometry.

2. Find the following derivatives using the rules of calculus:

(i) $\frac{d}{dx} \sqrt{x^2 + 3}$

(ii) $\frac{d}{dx} \ln(\sin 5x)$