Math 181 Honors Quiz 9 Version A

1. Find the following derivatives:

(i) $\dfrac{d}{dx}\left(x^3 \cos x\right)$

(ii) $\dfrac{d}{dx}\arctan\left(\dfrac{x}{x+1}\right)$

(iii) $\dfrac{d}{dx}\sqrt{x^4+1}$

(iv) $\dfrac{d^2}{dx^2}\left(13x + \sec 2x\right)$

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2. Find the following indefinite integrals:

(i) $\int \left(3x^2 + 2x + 1\right) dx$

(ii) $\int (x+2)(x-1)\, dx$

(iii) $\int \cos(14x)\, dx$

(iv) $\int x\sqrt{x+1}\, dx$