

11.9 #6

$$\arctan(x^3) = \sum_{n=0}^{\infty} \frac{(-1)^n (x^3)^{2n+1}}{2n+1}$$

$$= \sum_{n=0}^{\infty} \frac{(-1)^n x^{6n+3}}{2n+1}$$

$$\int \arctan(x^3) dx = \int \sum_{n=0}^{\infty} \frac{(-1)^n x^{6n+3}}{2n+1} dx$$

$$= \sum_{n=0}^{\infty} \frac{(-1)^n x^{6n+4}}{(2n+1)(6n+4)} + C$$