Problem 1: Evaluate the following derivatives [you do not need to simplify but you do need to show your work]:

(a) $\dfrac{d}{dx}(x^{\pi}-x+1)e^{x} =$

(b) $\dfrac{d}{dx}\left(\dfrac{x^{3}-x+2}{x^{2}-5x+1}\right) =$

(c) $\dfrac{d}{dx}(3-2x^{2})^{12} =$

Problem 2: Evaluate the following derivatives [you do not need to simplify but you do need to show your work]:

(a) $\dfrac{d}{dx}\,x^{3}\,7^{x}\arctan x =$

(b) $\dfrac{d}{dx}\left(\dfrac{\cot x \ln x}{\log_{5} x}\right) =$

(c) $\dfrac{d}{dx}\,\cos^{2}(\ln(1-2x)) =$

Problem 3: Evaluate the following derivative [you do not need to simplify but you do need to show your work]:

$$\frac{d}{dx}\left(\frac{5^{2x}\csc(7x)}{\sin^2(e^x)\arcsin(3x+1)}\right) =$$