MAC 2311 Hybrid Calculus I (B)

**Section 3.2-3.4**

1. Find the derivative of$ f(x)=\frac{x^{3}-1}{x-1}$. Simplify before taking the derivative. Use the Power Rule Only. Do not use the product or quotient rules.

2. Find the derivative of$ g\left(x\right)=\left(x-1\right)^{3}(x+1)$ Simplify before taking the derivative. Use the Power Rule Only. Do not use the product or quotient rules.

3. Find the derivative of$ h\left(x\right)=\frac{9}{\sqrt{2x}}$

4. Find the equation of the tangent line to the graph of $y=\frac{x-1}{x+1}$ at *x*=1

 5. Given$ f\left(x\right)=x^{2}\sec(\left(x\right)),$ find$ f'\left(x\right)$.

6. Find$ \lim\_{x\to 1}\frac{Sin(x-1)}{x^{2}-1}$.

7. Find $\frac{d}{dx}\left(π^{4}+1\right)$

8. Find $\frac{d}{dπ}\left(π^{4}+1\right)$

9. Find $\frac{d^{2}}{dt^{2}}t\sin(\left(t\right))$

10. $\frac{d}{dx}\left(\frac{\tan(x)}{x^{2}}\right)$**=**

11. If *f* ′ exists, then find $\frac{d}{dx}\left[\frac{x}{f\left(x\right)}\right]=$

12. $\frac{d}{ds}\left(secs+cscs\right)$