Name：_____   SID：_____

1. a) Find the differential df of $f(x) = \sqrt[3]{x+5}$ at a=3. b) Use (a) to approximate the value of $\sqrt[3]{7.99}$.

2. Let $f(x) = \frac{1}{4}x^4 + x - 1$, evaluate the value of $(f^{-1})'(3)$ by the inverse function theorem.

3. To approximate $\sqrt[5]{31.99}$ by linearization.

4. Let $f(x) = \frac{x+6}{x-2}$, evaluate the value of $(f^{-1})'(3)$ by the inverse function theorem.

5. Find the derivative of $f(x) = \ln(x^3 - 5x + 1)$.

6. Find the derivative of $f(x) = e^{(5x+3)}$.

7. Find the derivative of $f(x) = 5^{(3x^2+4)}$.	8. Find the derivative of $f(x) = \log_3(6x^5 + 7)$
9. Find y', if $y = \dfrac{\sqrt[3]{4x+5}(7x-3)^5}{(6x+7)^2}$ by logarithmic differentiation.	10. Find y', if $y = x^{\sqrt{x+1}}$.