



Math 181
Recitation Quiz 4 (2.5 – 2.6, 2.8)

Full Name _____
Full Name _____
Full Name _____
Date _____

Open notes, open book. No more than 3 per group.
All questions worth 10 points except where noted.
No work = No credit.

1. Find when the function $f(x) = 6\sin(\pi x)$ has a horizontal tangent on $[-2\pi, 2\pi]$.
2. Find when the second derivative is zero for the function $f(x) = 2x^4 - 3x^3 + 5x$.
3. Differentiate $f(x) = \sqrt{\frac{\sin(\cos(x)) + 1}{e^{-2x+1} + x}}$.
4. Differentiate $f(x) = \sin^2(\pi x) + \sqrt{\sqrt{\sqrt{\pi}}}$.
5. Differentiate $f(x) = x \cdot 3^x \cdot e^{\sin(x^2+2x+1)}$
6. Find when the function $f(x) = \frac{x^3 - 2x^2 + 5x}{\lambda}$ has a horizontal tangent.
7. For $x^2 + 2xy - y^2 + x = 2$, use implicit differentiation to find dy/dx , and then find the equation of the tangent line to the curve at the point (1,2).
8. (15 points) Find y' and y'' by implicit differentiation for $x^3 + y^3 = 1$ (your answers should be in terms of x and y).
9. (15 points) Find the equation of the tangent line, $y(x)$, for $f(x) = x^{3/5}$ at $x = 32$. Estimate $f(32.01)$ with this equation. What is the percentage error compared to what it should be?