



Math 181
Recitation Quiz 1 (1.1 – 1.2)

Full Name _____
Full Name _____
Full Name _____
Date _____

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

1. Find the domain of $f(x) = \frac{x^2 - 1}{x^2 + 2x + 1}$.
2. Determine if $f(x) = \frac{x^2 - 1}{x^2 + 2x + 1}$ has holes or asymptotes, if so, identify them.
3. Evaluate and simplify the difference quotient $\frac{f(x+h) - f(x)}{h}$ for $f(x) = \frac{x+1}{x-1}$.
4. Sketch the graph of the function $f(x) = \begin{cases} -1 & x \leq -2 \\ x+2 & |x| < 2 \\ 4-x & x \geq 2 \end{cases}$.
5. Determine whether the function $f(x) = \frac{x^3}{x^2 + 1}$ is odd, even or neither.
6. For $f(x) = x^2 - 5$, and $g(x) = \sqrt{(x-1)(x+1)}$, find and simplify $g \circ f(x)$.
7. For the question above, determine the domain of $g \circ f(x)$.
8. When is the function $\frac{\sin(x-\pi)}{\cos\left(\frac{x}{2} + \pi\right)}$ undefined?
9. When is the function $\frac{\sin(x-\pi)}{\cos\left(\frac{x}{2} + \pi\right)}$ equal to zero?
10. For the function pictured, identify (using interval notation) where it is increasing, decreasing and constant.

