

# MATH 425

Quiz #3

1.  $f(x) = x^2 - 2x + 1$

$$\lim_{h \rightarrow 0} \left( \frac{(x+h)^2 - 2(x+h) + 1}{h} - \frac{x^2 - 2x + 1}{h} \right)$$

$$\cancel{x^2} + h^2 + 2xh - \cancel{2x} - 2h - \cancel{x^2} - \cancel{2x} + 2h \quad \frac{h^2 + 2xh - 2h}{h}$$

$$\frac{h(h + 2x - 2)}{h} \quad h + 2x - 2 \quad \boxed{2x - 2}$$

2.

- a. not differentiable at C
- b. negative at DE because they are sloped down (-slope)
- c. positive at G because it is sloped up (+slope)

3. a