

# Mathematics 122

Quiz 10

Name: Key

*You must show your work to get full credit.*

1. Draw graphs of a function  $y = f(x)$  that satisfy:

(a)  $f'(x) > 0$  and  $f''(x) > 0$

Increasing concave up



(b)  $f'(x) > 0$  and  $f''(x) < 0$

Increasing concave down



(c)  $f'(x) < 0$  and  $f''(x) > 0$

Decreasing concave up



(d)  $f'(x) < 0$  and  $f''(x) < 0$

Decreasing concave down



2. Draw a graph of a function with  $f(1) = 2$ ,  $f'(1) = 0$  and  $f''(x) < 0$ .

→ concave down  
→ horizontal tangent line

