Math 121 Quiz 4 1 or 2pm Print Name

1. If $f(x) = 3\sqrt[3]{(2x-1)^2}$,

- **a**. find f',
- **b**. use f' to find the interval where f is increasing or decreasing,
- **c**. use f' to find the relative maximum or minimum for f if any,
- **d**. use f'' to find the interval(s) where f is concave upward or downward,
- **e**. use f'' to find the inflection point(s) of f if any.

2. If $f(x) = \dfrac{1}{x^2+1}$.

- **a**. find f'
- **b**. use f' to find the interval where f is increasing or decreasing
- **c**. use f' to find the relative maximum or minimum for f.
- **d**. find f'',
- **e**. assume $f''(x) = \dfrac{2(\sqrt{3}\,x+1)(\sqrt{3}\,x-1)}{(x^2+1)^3}$, use f'' to find the interval(s) where f is concave upward or downward,
- **f**. use f'' to find the inflection point(s) of f if any.

3. If $f(x) = -x^4 - 2x^3 + 1$,

- **a**. find f'
- **b**. use f' to find the interval where f is increasing or decreasing
- **c**. use f' to find the relative maximum or minimum for f.
- **d**. use f'' to find the interval(s) where f is concave upward or downward,
- **e**. use f'' to find the inflection point(s) of f if any.