

Math 220 Take-home (Quiz #8)

Name and section no. _____

For the following function, fill in the information and then sketch the function accurately!

Work on your own. You may use notes and book, but your own work must be evident. Any answers that entail intervals must be in interval notation. If no intervals that fit the description, write "NONE".

$$f(x) = \frac{1}{1+x^2}$$

1. Domain f :

2. Intercepts in *ordered pair form* (x, y) :

3. The second derivative is provided. Do the first, making sure it is in similar form, with no negative exponents.

$$f'(x) = \qquad f''(x) = \frac{6x^2 - 2}{(1+x^2)^3}$$

4. Critical numbers: $c =$

5. f increases on:

f decreases on:

5. Local extremes, in *ordered pair form* (x, y) :

6. f is concave up on:

f is concave down on:

Points of inflection, in *ordered pair form* (x, y) :

7. Sketch $f(x)$ on the axes below, using the scale shown:

