MAC 2311 Hybrid Calculus I (S)

Name Quiz # 11 4.3,4.5 Take-Home. Show all your work.

1. Make a rough sketch of $y=\frac{(x-1)^{2}}{x^{2}+1} $by answering a) through d)

1. domain: ­­­\_\_\_\_\_\_\_\_\_\_ *x*intercept(s): ­­­\_\_\_\_\_\_\_\_\_*y*intercept: ­­­\_\_\_\_\_\_\_\_\_symmetry (if any): ­­\_\_\_\_\_\_\_\_\_\_\_\_

 vertical asymptote(s)\_\_\_\_\_\_\_\_­­­\_\_\_\_\_horizontal asymptote(s)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Critical point(s) (*x*,*y*): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Intervals where *y* is increasing \_\_\_\_\_\_\_\_\_\_\_decreasaing \_\_\_\_\_\_\_\_\_\_ Show sign chart.
3. Intervals where *y* is concave up \_\_\_\_\_\_\_\_\_\_Concave down \_\_\_\_\_\_\_\_\_\_ Show sign chart.
4. Inflection point(s) (if any) \_\_\_\_\_\_\_\_\_\_
5. Graph (lable all points):

PAGE 1 of 2

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2) Find the local maximum and minimum value(s) of $f\left(x\right)=3-2x^{2}+x^{4}$ using:

(a) the 1st derivative test

Answer(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) the 2nd derivative test

PAGE 2 of 2