

Math 251/249

Worksheet 10  
[Curve-Sketching]

In each of the questions which follow, determine the x- and y-intercepts, horizontal and vertical asymptotes (if they exist), critical numbers, regions of increase and decrease, local maxima and local minima, regions of concavity, points of inflection. Using this information, sketch the curve.

1.  $y = \frac{x^2}{(x - 2)^2}$

2.  $y = \frac{2x}{x^2 + 1}$

3.  $y = \frac{\sqrt{1 - x^2}}{x}$

4.  $y = (x - 1)(x + 1)(x - 2)^2$

5.  $y = x^{\frac{4}{3}} + 4x^{\frac{1}{3}}$

6.  $y = (x^2 - 1)^3$

7.  $y = 3x^{\frac{2}{3}} - x$

8.  $y = \frac{x^2}{x^2 - 4}$

9.  $y = \ln(4 - x^2)$

10.  $y = \frac{x^3}{x^2 + 1}$

Math 251/249

Worksheet 10  
[Curve-Sketching]

11.  $y = 2 \cos x + \sin (2x)$

12.  $y = x e^x$

13.  $y = \frac{x^2}{\sqrt{x+1}}$