University of Calgary
Faculty of Science
Department of Mathematics and Statistics

Math 251

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

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

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

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

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

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

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

12. $y = x\, e^{x}$

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