

Math. 128 Sample test 3

- 1) Find  $dy/dx$  using implicit differentiation  $2x^3 - 3y^2 = 4$
- 2) Use differentials to approximate
  - a)  $(99.7)^{1/2}$
  - b) the change in value of function  $f(x) = 2x^{1/2} - 3$  as  $x$  changes from 4 to 4.5.
  - c) ex.  $34/769$choose one
- 3) Find interval(s) where  $f(x) = x^3/3 - x^2 + x - 3$  is increasing
- 4) Find horizontal and vertical asymptotes (if any) of  $f(x) = (x^2 + x)/[x(x - 1)]$ .
- 5) Find absolute max. value of  $f(x) = x/(x^2 + 1)$  on  $[0, 5]$ .
- 6) Find relative max/min (if any) of  $f(x) = 3x^4 - 2x^3 + 4$ .
- 7) ex.  $35/831$
- 8) ex.  $43/758$ , ex.  $50/759$ , ex.  $30/745$  (choose one)
- 9) Solve for  $x$ ,  $12 - e^{0.4x} = 3$ .
- 10) Find the equation of the t-line to the graph of  $f(x) = e^{2x-3}$  at  $(2/3, 1)$ .
- 11) Find derivative of  $f(x) = (e^x + 1)/e^x$ .
- 12) Find inflection point of  $f(x) = xe^{-2x}$ .
- 13) Find second derivative of  $f(x) = 2(\ln x)^{3/2}$ .
- 14) Find the general antiderivative of (choose one)
  - a)  $f(x) = 3x - 1$
  - b)  $f(x) = 7$
  - c) evaluate  $\int dx$

Choose any 11 exercises. This sample test does not represent the whole material included in sections 11.5 - 14.1. It is absolutely necessary to complete all exercises listed in syllabus as homework.