HOMEWORK 1
APPLIED CALCULUS
DUE 2013-08-22

Show your work!

All problems are from "Preparation for Applied Calculus, and Applied Calculus extras". Make sure you do all 10 problems.

(p. 35) For each of the following problems,

      a) find an expression equivalent to the given expression for all values except possibly the stated value.

      b) evaluate the equivalent expression at the stated value.

    #12. $\dfrac{1/(x+h+5) - 1/(x+5)}{h}$ at $h = 0$.

    #15. $\dfrac{\sqrt{x} - \sqrt{5}}{x - 5}$ at $x = 5$. (HINT: Rationalise!)

(p. 58) Find an equation in slope–intercept form for the line described.

    #6. The line that passes through $(-1, 3)$ and is parallel to the line with equation $y = -2x + 7$.

    #12. The line that passes through $(-2, 4)$ and $(3, 7/2)$.

(p. 86) Find and simplify (to factored form) the difference quotient $\dfrac{f(x+h) - f(x)}{h}$.

    #12. $f(x) = 7 - 3x^2$.

    #13. $f(x) = 1/x$.

(p. 124)

    #20. Re-write $\ln(x^{\ln(x)})$ as an expression that does not involve a power of x.

    #28. Re-write $\frac{1}{2}\ln(3x - 5) + 4\ln(2x - 3)$ as the logarithm of a single quantity.

(p. 130) Solve the following equations algebraically. Round your answer to 3 decimal places.

    #13. $e^x - e^{-x} = 0$.

    #23. $\log(x + 8) + \log(x - 1) = 1$.