

Instructions: Please work the following problems on other pieces of paper. You must show all work and calculations in order to receive full credit. I would prefer to collect your assignments in class on the day it is due, but I will accept it as late as 5:00 PM on the due date. Assignments submitted later will receive 50% credit.

- Section 1.8 #4.
- Let $f(x) = \sqrt{3x+1}$ and $g(x) = 3x^2 + 2x$. Also, assume $x \geq -\frac{1}{3}$. Evaluate $(f \circ g)(x)$, and simplify your answer as far as possible. *Hint:* Your final answer should not have a radical in it.
- Let $f(x) = \frac{2x-1}{x}$ and $g(x) = \frac{1}{2-x}$. Show that $(f \circ g)(x) = (g \circ f)(x) = x$.
- Use the properties of logarithms to write $\log_3 7 + \frac{1}{2} \log_3 2 - \log_3 8$ as a single logarithm.
- Use the properties of logarithms to write $\ln \frac{4\sqrt[5]{2}}{7}$ as a sum and/or difference of logarithms.
- Section 1.8 # 58.
- Section 1.8 # 60.
- Suppose Susan invests \$1400 at 5% annual interest and the bank compounds the interest continuously. How many years will it take for the account grow to \$2000?
- Suppose Alice invests \$1300 at 4.5% annual interest and the bank compounds the interest monthly. How many years will it take for the account grow to \$2500?
- Complete the following table (on a separate sheet of paper) numerically to estimate $\lim_{x \rightarrow 1} f(x)$, provided that $f(x) = \frac{x^2 + 4x - 5}{x - 1}$.

x	0	0.9	0.99	0.999	1.001	1.01	1.1	2
$f(x)$								
- Section 2.1 # 42.
- Section 2.1 # 44.
- Section 2.1 # 46.
- Section 2.1 # 56.
- Section 2.1 # 68.