

**DIRECTIONS:**

- This quiz is due on Monday, Jan. 14 at the beginning of class.
- Use a pencil (NOT a pen) only.
- You must **staple** this coversheet this side up to you quiz.
- Show all work, clearly and in order **You will lose points if any of these instructions are not followed.**

Questions	Points	Score
1	1.5	
2	1.5	
3	2	
Total	5	

**Problem 1:** (1.5 point) Solve the following equations for  $x$ .

(a) (0.75 points)  $\frac{2^x+1}{3^x-5} = 0$ .

(b) (0.75 points)  $25^x - 26(5^x) + 25 = 0$ .

**Problem 2:** (1.5 point) Rewrite the following in terms of a natural log or exponential.

(a) (0.75 points)  $f(x) = \pi 2^x$ .

(b) (0.75 points)  $g(x) = 2\log_3(x^2 + 1)$ .

**Problem 3:** (2 points) Determine the following limits (you do not need to prove them).

(a) (0.5 points)  $\lim_{x \rightarrow 0^+} \log_{\frac{1}{2}} x$ .

(b) (0.5 points)  $\lim_{x \rightarrow \infty} \frac{1}{2+3^x}$ .

(c) (0.5 points)  $\lim_{x \rightarrow \infty} \frac{2^x - 4^x}{5^x}$ .

(d) (0.5 points)  $\lim_{x \rightarrow 0} \frac{e^{2x} - 6e^x + 5}{1 - e^x}$ .