

Test Total

Name \_\_\_\_\_

Test 1      3450:149 PreCalculus   Dr. Norfolk

July 2, 2009

Show your work.

1. Inequalities

(a) Solve  $3x + 4 \geq -\frac{1}{x}$ .

10 points

(b) Solve  $x^4 - 6x^2 > 0$ .

10 points

2. Inverse Functions. Given  $f(x) = \frac{x-1}{2x+1}$ , find  $f^{-1}(x)$ , write  $Domain(f)$  and  $Range(f)$ .

10 points

Page 1 Total (30)

**3. Exponentials.**

(a) Find the *Domain* and *Range* of  $f(x) = e^x - 1$ .

10 points

(b) *Without using logarithms*, solve  $6^{x^2} \cdot 36^{2x} = 6^{-5}$ .

10 points

**4. Logarithms**

(a) Find the *Domain* of  $f(x) = \frac{1}{\log_2(x - 3) - 4}$ .

10 points

Page 2 Total (30)

(b) Given  $\log_3 a = 1.2$ ,  $\log_3 b = 2.7$ ,  $\log_3 c = 3.5$ , find the value of  $\log_9 \left( \frac{\sqrt{ac}}{b} \right)$ .

10 points

**5. Equations**

(a) Solve  $\log_2(2x + 1) - \log_2(3x - 2) = 1$ .

10 points

Page 3 Total (20)