

Name:

MAT186 Test 4

1. Solve for x : $\log_4(x + 2) = 1 - \log_4(x - 1)$

2. The normal healing of wounds can be modeled by the function $A = A_0 e^{-0.35n}$, where A_0 represents the original area of the wound and A equals the area of the wound after n days. How long before the wound is 10% of its original size?

3. The barometric air pressure (in inches of mercury) at a distance of m miles from the eye of a severe hurricane is modeled by the function $P(m) = 27 + 0.48 \ln(m + 1)$. Find the inverse function and explain what P^{-1} means in the context of the problem.

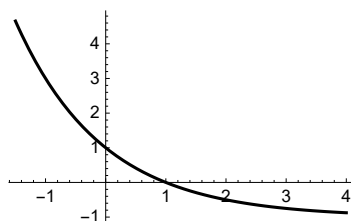
4. Write the equation of a natural log graph whose domain is $(-\infty, -2)$ and has been shifted 3 units up.

5. Check to see if the following functions are inverses; $f(x) = \sqrt{9 - x^2}$ and $g(x) = \sqrt{9 - x^2}$

6. Determine the domain of the following function: $f(x) = \frac{1}{\sqrt[3]{2x-1}}$

7. Determine (prove) if the function $f(x) = x\sqrt{1-x^2}$ is even, odd or neither.

8. Write the equation of the following function.



9. The function $t(L) = -164 \ln\left(1 - \frac{L}{500}\right)$ describes the amount of time (t) it will take a student to learn L words. How many words can a student learn in 30 minutes?

10. Solve for x: $e^{ax} = Ce^{bx}$

11. Find the inverse for $f(x) = \frac{2-x}{x+3}$

12. Given $f(x) = \frac{1}{x}$ find the difference quotient (and simplify) $\frac{f(x)-f(a)}{x-a}$

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By signing below I confirm that I have neither given nor received any unauthorized assistance on this exam. I am in compliance with the conditions specified on the exam with regards to time and materials permitted. I further attest that I have not had any contact with others who have already taken the exam, nor received assistance from any other sources in the taking of this exam.
