

Math 4
Exam 4
October 13, 1998

Name _____

Instructor _____
Class Time _____

Show all work neatly for partial credit.

1. Solve for x and y .

(8)

$$3x + 2y = 10$$

$$2x + 5y = 3$$

1. _____

2. Solve for x and y .

(8)

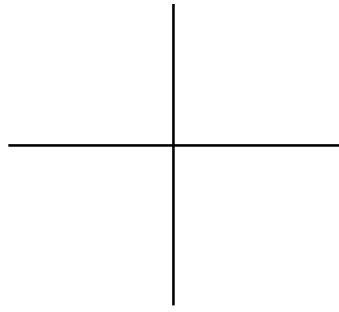
$$2x - y^2 = 0$$

$$x - y = 4$$

2. _____

3. Graph $f(x) = 5^{-x} - 3$. State domain and range.

(6)



3. domain: _____

range: _____

4. Solve for x in the equations and give **exact** answers. Be sure to check your answers.
(4 ea)

(a) $-14 + 3e^x = 11$

(a) _____

(b) $\log_2 x + \log_2(x + 2) = \log_2(x + 6)$

(b) _____

(c) $\log_4 x - \log_4(x - 1) = \frac{1}{2}$

(c) _____

(d) $e^{2x} - 4e^x + 3 = 0$

(d) _____

Rewrite as the logarithm of a single quantity.

5. $\ln 5 + \frac{1}{2} \ln(3 - x^2) - 2 \ln y$

(4)

5. _____

6. Expand-write as a sum, difference or multiple of logarithms.

(4)

$$\log \sqrt[4]{\frac{a^2 b}{c^3}}$$

6. _____

For problems 7-8. Given: $\log_a 2 \approx .308$

$$\log_a 3 \approx .488 \quad \log_a 5 \approx .715$$

7. Find $\log_a \left(\frac{15}{2}\right)^2$.

(4)

17. _____

8. Find $\log_a \left(\frac{5a}{3}\right)$.

(4)

18. _____

For problems 9-16, match the function with the proper graph.

(16)

_____9. $y = \log_3 x$

_____13. $y = -\log_3 x$

_____10. $y = \log_3 x - 1$

_____14. $y = \log_3(1 - x)$

_____11. $y = \log_3(-x)$

_____15. $y = -\log_3(-x)$

_____12. $y = \log_3(x - 1)$

_____16. $y = 1 - \log_3 x$

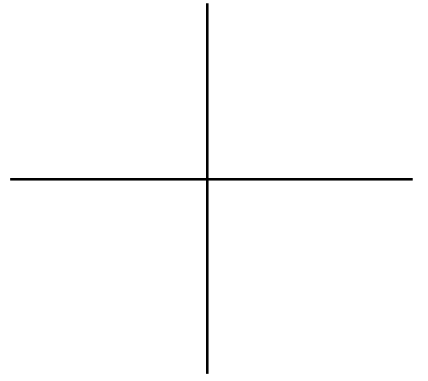
17. Graph the system. Label all intercepts and label boundary lines of A , B , C .

(9)

A. $2x + y \leq 4$

B. $2x - y \geq 0$

C. $x \geq 0$



18. Find the equation of the parabola $y = ax^2 + bx + c$ passing through the points (0,-4), (-1,1) and (2,-2).
(8)

7. _____

19. Evaluate $\frac{12(\ln 31)}{\ln 5 - \ln 3}$ to nearest 3 decimal places.
(4)

19. _____

20. Use your calculator to solve the following equation. Give your answer to 3 decimal places.
(4) $7^x = 18$

20. _____

21. Find the value at the end of 4 years for \$2,600 invested at $5\frac{1}{4}\%$ with continuous compounding
(use $A = Pe^{rt}$).
(5)

21. _____