

Math 1050 Final Exam form E - Fall Semester 2006

Name \_\_\_\_\_

Instructor \_\_\_\_\_

Student ID \_\_\_\_\_, ID Verification \_\_\_\_\_ Section Number \_\_\_\_\_

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This exam has three parts: Part I - Ten multiple choice questions  
Part II - Ten open ended questions - you **MUST** show all your work  
Part III - Choose FIVE out of ten open ended questions - you **MUST** show your work and indicate which five problems are to be graded

Students are **NOT** allowed to use books or notes.

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PART I: Questions 1 - 10, Multiple choice

**Answer all TEN questions and circle the correct answer.**

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**Find the domain of the function.**

1)  $h(x) = \frac{x - 4}{x^3 - 49x}$

A)  $\{x|x \neq -7, 0, 7\}$

B)  $\{x|x \neq 4\}$

C)  $\{x|x \neq 0\}$

D) all real numbers

**Solve the equation.**

2) Find all the real solutions of the following equation.

$\log_3 x + \log_3 (x - 8) = 2$

A) 9

B) 3

C) -1, 9

D) 1, -9

**Find the function that is a result of using the following transformations which are applied to the graph of  $y = \sqrt{x}$ .**

- 3) i) Shift up 3 units
- ii) Reflect about the y-axis
- iii) Shift left 5 units

A)  $y = -\sqrt{x + 5} + 3$

B)  $y = \sqrt{-x - 5} - 3$

C)  $y = \sqrt{-x - 5} + 3$

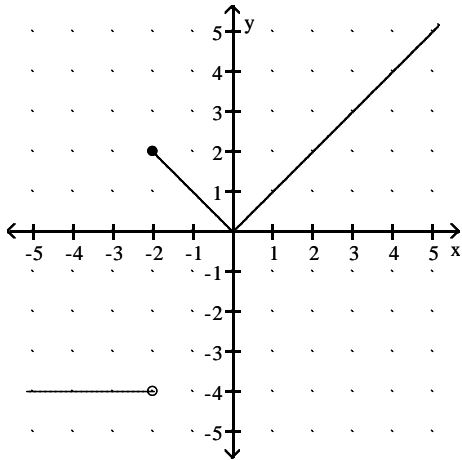
D)  $y = \sqrt{-x + 5} - 3$

Graph the function.

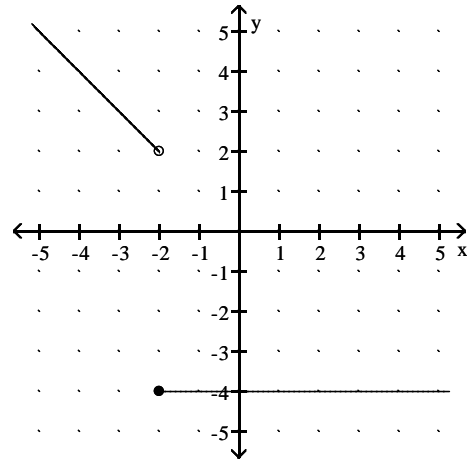
4)

$$f(x) = \begin{cases} |x| & \text{if } x < 2 \\ -4 & \text{if } x \geq 2 \end{cases}$$

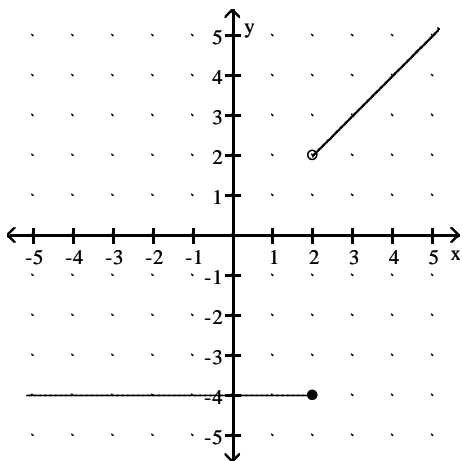
A)



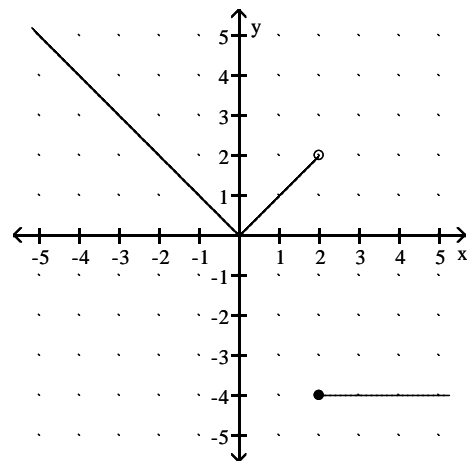
B)



C)



D)



Solve the system of equations for x.

5)

$$\begin{cases} 3x + 2y + z = 14 \\ 2x - 2y - z = -9 \\ 4x + y + 5z = 23 \end{cases}$$

A)  $x = 1$

B)  $x = 3$

C)  $x = 4$

D) inconsistent

**Find the first term, the common difference for the arithmetic sequence.**

6) 7th term is 59; 15th term is 43

A)  $a_1 = 71, d = 2$

B)  $a_1 = 71, d = -2$

C)  $a_1 = 73, d = 2$

D)  $a_1 = 73, d = -2$

**List the potential rational zeros of the polynomial function. Do not find the zeros.**

7)  $f(x) = 5x^3 - x^2 + 3$

A)  $\pm \frac{1}{3}, \pm \frac{5}{3}, \pm 1, \pm 5$

B)  $\pm \frac{1}{5}, \pm \frac{3}{5}, \pm 1, \pm 3$

C)  $\pm \frac{1}{5}, \pm \frac{3}{5}, \pm 1, \pm 3, \pm 5$

D)  $\pm \frac{1}{5}, \pm \frac{1}{3}, \pm 1, \pm 3, \pm 5$

**Determine whether the function is even, odd, or neither.**

8)  $f(x) = \frac{x}{x^2 - 3}$

A) even

B) odd

C) neither

**Solve the problem.**

9) The size  $P$  of a small herbivore population at time  $t$  (in years) obeys the function  $P(t) = 1000e^{0.2t}$  (if they have enough food and the predator population stays constant). After how many years will the population reach 3000?

A) 10.49 yrs

B) 14.98 yrs

C) 5.49 yrs

D) 38 yrs

**Compute the product.**

10)

$$\begin{bmatrix} 0 & -3 & 1 \\ 5 & -1 & 0 \end{bmatrix} \begin{bmatrix} 1 & 2 \\ 0 & 1 \\ 1 & -1 \end{bmatrix}$$

A)  $\begin{bmatrix} 1 & 5 \\ -4 & 9 \end{bmatrix}$

B)  $\begin{bmatrix} 1 & -4 \\ 5 & 5 \end{bmatrix}$

C)  $\begin{bmatrix} 1 & 5 \\ 9 & -4 \end{bmatrix}$

D)  $\begin{bmatrix} 1 & -4 \\ 5 & 9 \end{bmatrix}$

Answer Key

Testname: MATH 1050 FALL 2006 FINAL EXAM FORM E PART 1

- 1) A
- 2) A
- 3) C
- 4) D
- 5) A
- 6) B
- 7) B
- 8) B
- 9) C
- 10) D