

**Jacky Peterson-Math**

MAT150- TEST #1 &amp;#2 Review

NAME \_\_\_\_\_

CLASS HOUR; \_\_\_\_\_

PAGE 1 Fall 2008**ALL WORK MUST BE SHOWN IN ORDER TO RECEIVE CREDIT!!!****Test #1**

1. Simplify

$$\left(\frac{16x^{-8}}{y^4z^{-4}}\right)^{-1/4}$$

1. \_\_\_\_\_ (6)

2. Dvide and Simplify:  $\frac{x^2 - 3x + 2}{2x^2 + 3x - 2} \div \frac{x^2 + x - 12}{2x^2 - 5x - 3}$  2. \_\_\_\_\_ (5)3. Simplify the complex fraction:  $\frac{\frac{3}{2x+1} - \frac{2}{2x-1}}{\frac{5}{4x^2-1}}$  5. \_\_\_\_\_ (6)

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4. Factor the following completely --- (5 points each) **CIRCLE YOUR ANSWER**

a.  $9x^3 - 9x^2 - 16x + 16$

b.  $4x^{1/2}y^{-3} + 8x^{-1/2}y^5$

c.  $3y^3(x+1)^{-1/3} + 9y^2(x+1)^{2/3}$

5. Solve for x: \_\_\_\_\_(5)

$$\frac{3}{x-2} - \frac{1}{x-1} = \frac{7}{x^2 - 3x + 2}$$

List the value(s) for x that must be **excluded** as solutions for this problem.  
(ie. what can x NOT be?)

\_\_\_\_\_(2)

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6. Given the following function:  $x^2 - y^3 - 64 = 0$

a. Find the x-intercept a. \_\_\_\_\_(3)  
(Write you answer as a coordinate point):

b. Find the y-intercept b. \_\_\_\_\_(3)  
(Write you answer as a coordinate point):

c. Check for symmetry with respect to **the y-axis** and state your conclusion:

Work for symmetry check: (3 points)

Statement of conclusion and how you know: (2 points)

Test #2

7. Find the domains (using algebra) of the following functions:

a.  $f(x) = -3x^2 - \frac{1}{2}x - 4$

a. Domain:

\_\_\_\_\_ (5)

b.  $f(x) = \frac{2x - 1}{x^2 - x - 2}$

b. Domain:

\_\_\_\_\_ (5)

c.  $f(x) = \sqrt{2 - 3x}$

c. Domain:

\_\_\_\_\_ (5)

8. Describe in a step by step fashion how the complete graph  $f(x) = -\frac{1}{2}\sqrt{x+3} - 2$

can be obtained from the graph in step 1.

Step 1: Basic Function:  $y =$  \_\_\_\_\_

(5 points)

List the Transformation:

Verbal description: Step 2:

Step 3:

Step 4:

Step 5:

9. Given the following verbal description of a transformation, find an equation f(x) that represents it.

1: Basic Function :  $y = |x|$

2: right 2 units

3: reflect the y-axis

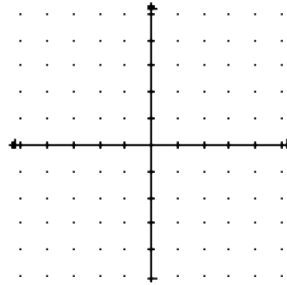
4: vertical stretch factor of 4

5: down 3

f(x) = \_\_\_\_\_ (5)

10. **Carefully** graph the following piecewise function:

$$f(x) = \begin{cases} 2x+1 & \text{if } -3 \leq x < 1 \\ 1 & \text{if } 1 \leq x < 3 \\ \frac{1}{3}x & \text{if } x \geq 3 \end{cases}$$



a) Graph  $f(x)$ -----→(6 points)

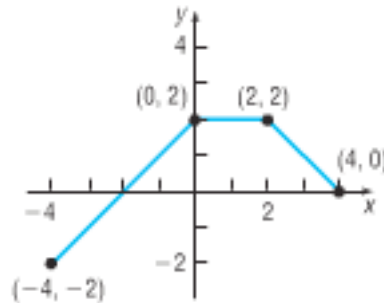
b) Find the Domain of  $f(x)$ : \_\_\_\_\_(4)

c) Based on the graph find the range of  $f(x)$  \_\_\_\_\_(3)

d) Locate the x and y intercepts:  
**Write your answer as (x,y) coordinate points** \_\_\_\_\_(3)

**If no intercept exists state NONE**  
 y-intercept(s) \_\_\_\_\_(3)

11. Given the following graph find the following:



a) Domain: \_\_\_\_\_(2) Range: \_\_\_\_\_(2)

b)  $f(1)$  \_\_\_\_\_(2)

c) x if  $f(x) = -1$  \_\_\_\_\_(2)

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12. Using the “4-step process” or some similar process and:  $f(x) = 3x^2 + 2x$

Find: 
$$\frac{f(x+h) - f(x)}{h}$$

\_\_\_\_\_ (8)