

NAME: _____

MATH 128 QUIZ 1 Fall 2009

This is due Tuesday, Sept. 22nd. PLEASE SHOW ALL WORK!

1.) Solve: $|x^2 - 50| = 14$

1. _____

2.) Solve. Give answer in interval notation and graph the

solution set on a number line: $\left|6 - \frac{x}{3}\right| - 1 \geq 1$

2. _____

3.) (10 points) Do the following points define a right triangle, an isosceles triangle, both, or neither? A = (-2, 3) B = (0, 9); C = (2, 5) Please show work and don't just guess.

3. _____

4.) Find the intercepts and indicate what kind of

symmetry this graph has: $y = -x\sqrt{4 - x^2}$

x-int: _____

y-int: _____

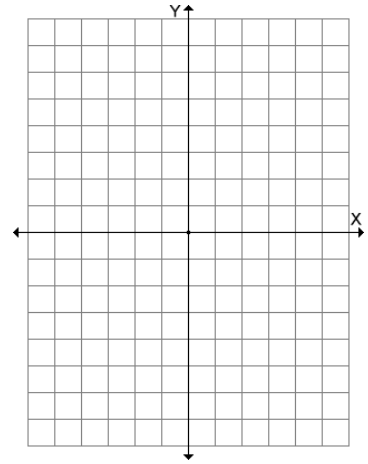
sym: _____

5.) Let $f(x) = \frac{x+12}{(x-4)\sqrt{x}}$. Find the domain of $f(x^2 + 4)$.

5. _____

6.) Identify the center and radius and graph the following circle:

$$3x^2 + 3y^2 + 12x + 18y + 12 = 0$$



center: _____ radius: _____

7.) (7 pts) Find the difference quotient for $f(x) = -\frac{1}{2x}$ by using 7. _____

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

8.) Find two functions f and g such that $(f \circ g)(x) = H(x)$, f(x): _____

given that $H(x) = \frac{(x-2)^2}{6} - 4x + 8$.

g(x): _____

9.) (10 points) Given that $f(x) = -\frac{2}{x}$, and $g(x) = 3x^2 - x$, $h(x) = 3x - 1$ find:

a.) $(g \circ h)(x)$ (Factor the result, if possible.) 9a. _____

b.) $(g \circ f)(x)$ (Please simplify and write as a single fraction.) 9b. _____

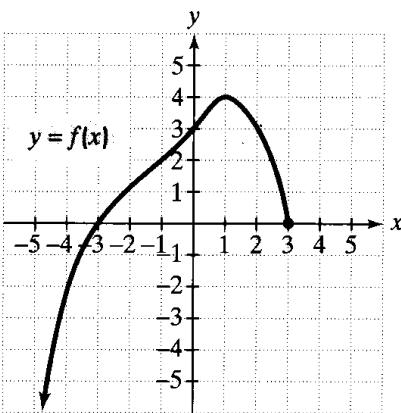
10.) (8 points) Let $f(x) = \frac{x^3}{3} + \frac{4}{3}$.

a.) Find the inverse $f^{-1}(x)$.

10a. _____

b.) Verify your answer is correct by showing $f(f^{-1}(x)) = x$ and $f^{-1}(f(x)) = x$.

11.) (10 points) Use the graph below to answer the questions.



a.) Find $f(2)$

11a. _____

b.) Find all value(s) of x such that $f(x) = 4$.

11b. _____

c.) Find the domain.

11c. _____

d.) Find the range.

11d. _____

e.) Interval(s) of decreasing

11e. _____

f.) Determine the x -intercepts

11f. _____

g.) Determine the y -intercept.

11g. _____

h.) Does this have any sym.? 11f.

i.) For what values is $f(x) \geq 0$? 11g.

12.) Evaluate $f(x) = \begin{cases} 2 + |-3x| & \text{if } x > 4 \\ \sqrt{2} & \text{if } x = 3 \\ 4 - \sqrt{3-x} & \text{if } x < 3 \end{cases}$ at the given values:

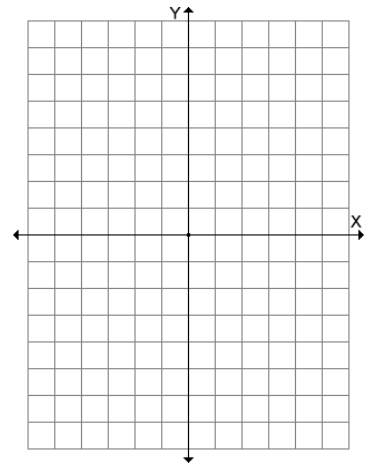
$f(3)$: _____ $f\left(\frac{7}{2}\right)$: _____ $f(-4)$: _____ $f(5)$: _____

13.) Graph using transformations: $y = 3 - \sqrt{4 - x}$

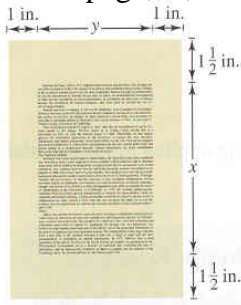
Identify the intercepts.

x-int: _____

y-int: _____



14.) A rectangular page is to contain 24 square inches of print. The margins at the top and bottom of the page are to be one and a half inches, and the margins on the left and right are to be one inch (see figure below). Write a function for the area of the page, A , in terms of the dimension x .



14. _____

15.) A student body discusses a possibility to organize a fund-raising event. The presumed price of a ticket is \$25.30. One member of the organizing committee has found an appropriate space for the event which can be rented for \$480. Another one knows a company providing chairs for \$1.30 each plus free tables. The committee needs to know the minimum number of people that need to attend this event in order to cover all these expenses.

15. _____

16.) (10 points) Find the vertex, axis of symmetry, and intercepts for $y = 16x^2 - 16x + 3$ and graph.

Vertex: _____ axis of symmetry: _____

x-int: _____ y-int: _____

