

College Algebra - Math 1050

Sample Exam I - 4 pages

Sections 1.7-3.2

Time Limit: 50 Minutes

NAME: _____

The point value of each problem is in the left-hand margin. You must show your work to receive any credit for your answers, except on problems 1&2. Work neatly.

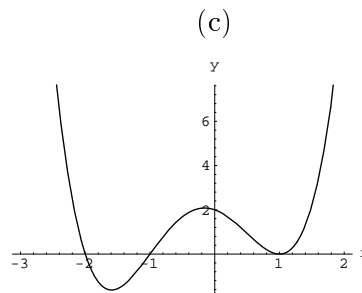
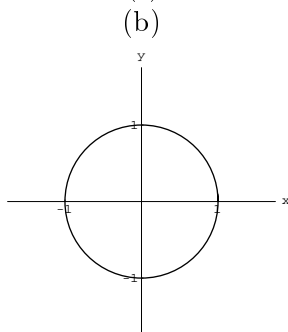
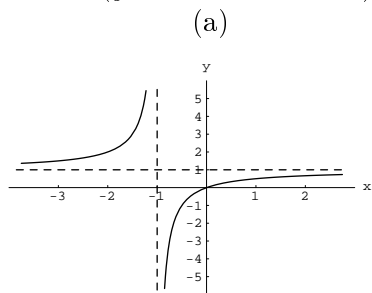
(6) 1. True or False.

- () (a) The number of x -intercepts of a graph of a polynomial function of degree n can not exceed n .
- () (c) If $f(x) = x - 1$, then $f(x + 1) = x$.
- () (d) The graph of an odd function is symmetric about the origin.

(6) 2. Fill in the blanks.

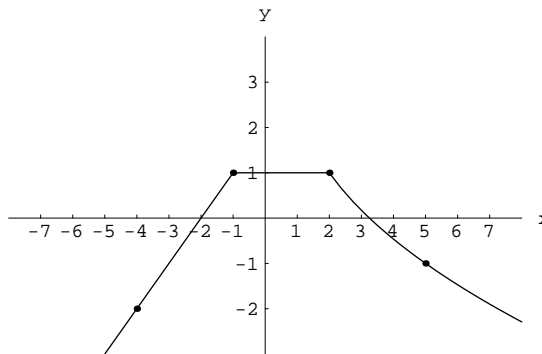
- (a) The graph of $g(x) = (x - 2)^2$ is the graph of $f(x) = x^2$ shifted to the _____ by _____ units.
- (b) The domain of the function $f(x) = \frac{1}{\sqrt{x+4}}$ is the interval _____.
- (c) The graph of the solution set of the absolute value inequality $|x| > 2$ is _____.

(8) 3. Determine which of the following represent a function and which of the following represent a 1-1 function (y as a function of x). State your reason(s).



_____ is (are) function(s). _____ is (are) 1-1 function(s).

(6) 4. Given the graph of $y = f(x)$, draw the graph of $y = f(x + 3) + 1$. Clearly mark four points on the graph. Explain your work.



(14) 5. Solve the inequality $\frac{3}{x-2} > \frac{2}{x}$. State your answer in interval notation.

(12) 6. The distance of a ball from the ground after t seconds is $d = -16t^2 + 120t + 25$ feet. Find the maximum height this ball will reach and the time it will hit the ground.

(10) 7. Find the inverse of the function $f(x) = 2x^3 - 5$, if it exists.

(12) 8. Given $f(x) = x^2$ and $g(x) = \sqrt{x}$. Find $(g \circ f)(x)$, $(f \circ g)(x)$ and their domains.

- (12) 9. Determine whether each of the functions $f(x) = x^3 + 1$, $g(x) = 1$ and $h(x) = \sqrt[3]{x}$ is odd, even, or neither.
- (14) 10. Sketch the graph of $f(x) = x^2(x^2 + x - 6)$ by finding its x - and y -intercepts, analyzing its behavior for large positive and negative x values and plotting at least an additional 4 points. Note: You must show all your work!