Additional Practice Problems

Math 121, College Algebra

Fall 2011

The final exam for Math 121 will be Monday December 12th 10:00-12:00and will be cumulative. It will be a mixture of multiple choice questions and problems to complete showing your work. No note cards will be allowed. Only a scientific calculator will be allowed. Do not bring a graphing calculator. To study, please redo all past exams and quizzes in addition to looking over your homework for the term. Anything you have been tested or quizzed on during the term could be on the final. These problems are additional if you want more practice.

1. For the circle 
   1. State the center and radius. Graph the circle. Place the circle correctly on the axes.
   2. Find the x and y intercepts and label them on your graph.
2. Given the two points  and 
   1. Plot them on the coordinate grid.
   2. Find the distance between them
   3. Find the midpoint of the line segment joining

them and put the midpoint on the same grid.

1. Find the distance between the two points  and .
2. Find the midpoint between the two points  and . All three points on the same grid to verify that the midpoint you found lies between the two given points.
3. For the function  find  and simplify.
4. Find the average rate of change of  from 1 to 3.
5. Be able to graph all of the basic graphs we discussed during the term. Also be able to state their domains, ranges, intercepts and any asymptotes.
6. Graph 
   1. Label at least two points.
   2. State the domain and range
7. Graph 
   1. Label at least two points.
   2. State the domain and range.
   3. Over what intervals is  increasing and decreasing?
8. Graph 
   1. Label at least two points.
   2. State the domain and range.
   3. Find all intercepts.
9. Graph 
   1. Label at least three points.
   2. What is the domain and range?
   3. Is the graph even, odd, or neither?
10. Graph .
    1. State the domain.
    2. Label the graph with the asymptotes.
11. For the polynomial function :
    1. Find the zeros and the multiplicity of each zero.
    2. State the behavior of the graph at each zero.
    3. Find the leading term and the end behavior of the graph.
    4. Sketch the graph.
12. Graph . Please state the domain, range, intercept(s) and asymptote.
13. Graph . Please state the domain, range, intercept(s) and asymptote.
14. Given 
    1. Complete the square to put it into form.
    2. State the domain and range.
    3. State the vertex and axis of symmetry.
    4. Find all intercepts.
    5. Label the vertex with coordinates.
15. Given  and 
    1. Find  and simplify
    2. Find 
    3. What is the domain of ?
16. Find the inverse function for:
    1. .
17. Write  in exponential form.
18. Evaluate
    1. 
    2. 
19. Solve the equations
    1. 
    2. 
20. Find the time required for $2000 to increase to $2500 if it is compounded quarterly at a rate of 2.5% per annum.
21. A bacteria population grows according to  with *t* in days. How long does it take for the population to reach 1000?