Preview Assessment: Review for Test 1

Name Review for Test 1

Instructions

Multiple Attempts This Test allows multiple attempts.

Force Completion This Test can be saved and resumed later.

Question Completion Status:

Question 1 **4.9 points** Save

You need to know the definition of,

- domain of a function
- range of a function
- graph of a function
- odd or even function
- one to one function
- inverse of a function
- composite of two or more functions
- zero of a function
- all of the above

Question 2 **4.9 points** Save

I should be comfortable graphing

- lines, parabolas and cubics
- sine and cosine
- square root function
- exponentials and logarithmic functions
- absolute value functions
- reciprocal functions like 1/x or 1/(x-3) etc...
- functions built from those listed above and simple operations like division, multiplication, addition or shift by a constant.
- all of the above and if I forget then I will not panic. I will make a table of values and work out what the shape looks like if need be.

Question 3 **4.9 points** Save

All of Homework Project I is reasonable to put on the first test.

- True
- False. Actually problem 3 was to build skill, however problems 1,2,4,5 and 6 would be fair questions.

Question 4 **4.9 points** Save

I should know how to solve algebra problems and/or perform the calculations and analysis like those found in problems,

- 1.1# 46, 50
- 1.2# 6, 7, 8, 9.
- 7.1#1, 2, 9
- 7.2#1, 17
- 7.3#1, 8, 11, 17, 27, 28.
- 7.6#1, 11
- Exercise 2.3.1 in my notes.
- All of the above.

Question 5 **4.9 points** Save

If there is a zero p(c) = 0 in a cubic polynomial p(x) then

- p(x) = (x-c)*(Ax^2+Bx+C)
- p(x) = (x-c)(x-b)(x-a)

Question 6 **4.9 points** Save

If p(x) is a cibic function with p(1) = 0 and p(2) = 0 then

- p(x) = (x-1)(x-2)(Ax+B)
- p(x) = A(x-1)(x-2)(x+B)
- either form is fine and we will not be able to determine A and B unless we are given more data about the cubic.

Question 7 **4.9 points** Save

If f(x) = ax^2 + bx + c and f(3) = 0 then

- the quadratic may or may not be factored.
- it can be factored, the form is f(x) = (x-3)(Ax+B) and we cannot figure out A and B unless we are given more information.

Question 8 **4.9 points** Save

I can have a cubic polynomial with the points (1,0), (-1,0), (3,0) and (4,0) on its graph.

- True
- False

Question 9 **4.9 points** Save

The domain of the exponential function is all real numbers but the range is just postive real numbers. An exponential function has no zeros.

- True
- False

Question 10 **4.9 points** Save

If f(-x) = f(x) then f is an even function. If f(-x) = -f(x) then f is an odd function.

- True
- False

Question 11 **4.9 points** Save

The domain of the inverse function is the range of the function. For example the domain of ln(x) is (0, infininty) since the range(exp(x)) is all positive real numbers.

- True
- False

Question 12 **4.9 points** Save

All functions must pass both the vertical and horizontal line tests.

- True
- False

Question 13 **4.9 points** Save

A function is said to be one-one if f(a)=f(b) implies a = b. A one-one function must pass the horizontal line test.

- True
- False

Question 14 **4.9 points** Save

In problem 3 of the Homework Project I we derived the adding angles formulas. I expect you to remember those without reminder forever.

- True
- False

Question 15 **4.9 points** Save

Infinite limits exist because infinity and minus infinity are just super big numbers.

- True
- False

Question 16 **4.9 points** Save

To calculate a limit as x approaches 3 we should,

- try to plug in 3 into the limiting function.
- if the function has the form nonzero/zero then we should think about values close to the limit point to determine which kind of infinite or nonexistent limit it is.
- if the function has the form zero/zero then we should think about algebraic manipulations we can do in order to remove the indeterminancy. Once the indeterminancy is removed we can just evaluate at x=3.
- if the formula for the function evaluated at x=3 presents no ambiguities then the limit is just the value f(3).
- notice that our function is weird and the Squeeze Theorem is our only hope. Construct sandwhiching inequaltity and find limit by indirect Squeezing argument.
- Consult the graph and apply the conceptual definition of limit as it applies to graphs (as in problems 2.2#6)
- If the limit has one of the other indeterminant forms then we should do the appropriate algebra (2.3# 26)
- All of the above and there should be no mystery about the algebra involved since we already finished the homeworks
  2.2# 25, 26, 27 and 2.3# 3, 4, 5, 6, 10, 13, 17, 19, 25, 26, 27, 37

Question 17 **4.9 points** Save

You are responsible for knowing the precise definitions of

- the limit in the "epsilon-delta" langauge
- continuity of a function at a point
- even and odd functions
- linear and quadratic functions
- derivative at a point.
- equation of the tangent line through (a,f(a))
- Given position s=s(t), the instantaneous velocity at some particular time. (like t=1 or t=2)
- all of the above.

Question 18 **4.9 points** Save

The Intermediate Value Theorem is often used to

- get a rough idea of where two functions are equal
- find the zeros of a polynomial
- either of these, see problems 2.5#45, 48.

Question 19 **4.9 points** Save

Given a piecewise defined function where all the pieces are continuous then

- its automatically continuous since all the parts are continuous
- we can just set the parts equal to each other at the edges of the cases and see if they're equal
- since continuous functions need the limit to exist at each point we must show that the left and right limits exist and are equal at the edges. Writing the limits explicitly is important because it demonstrates that we understand the concept and are not just randomly slapping stuff together.
- Part c is true and the instructor is particularly fond of problems like 2.5#40 or 42.

Question 20 **4.9 points** Save

There will be an epsilon-delta proof on the test.

- It is optional, don't worry about it.
- Its ok to be sloppy because there's always partial credit
- this problem is worth 10pts, it will be graded critically, thoughts must be put in there logical order and clearly and neatly argued.
- c is true, but on the other hand we have not so many worries since the instructor promised it would be just like 2.4# 15, 19 or Examples 3.8.1 or 3.8.2. (not one of the trickier ones)

Question 21 **4.9 points** Save

Let f(x) = x*g(x) where g is an odd function. Then,

- f is even and one-one on [0,6]
- f is odd and one-one on [0,pi/2]
- f is even and one-one on [0,1].
- f is neither even nor odd and its not one-one on [-1,1]

Save Submit