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/m143.fa07/handouts143/t1_143_A24/REVSTUFF/review_suggestions_2_tex

1 This list is not in final form. Like, stuff may yet be added to it.

2 Test #1 is

Wednesday
10/24/07.

3 The test will cover the material of Assignments #12 – #19, roughly, that is, sections 1.7 and 2.1-2.8.

4 You're off the hook for graphing-calculator problems on Test #2. The test was turning out to be too long with the calculator question, so no calculator questions this time.

5 Be sure you know about

(i) composing functions ($\boldsymbol{f} \circ \boldsymbol{g}$ and all that)

(ii) the graph-equation pairings set up on page 166 of our text

(iii) the section-2.4 moves

(iv) fast graphing of 2.4 transformations of page-166 functions.

(v) when the graph of function $\boldsymbol{g}$ arises from some section-2.4 transformations of the graph of $\boldsymbol{f}$, how does the formula for $\boldsymbol{g}$ relate to the formula for $\boldsymbol{f}$?

(vi) computing inverse functions from formulas

(vii) finding the graph of $\boldsymbol{f}^{-1}$ from the graph of $\boldsymbol{f}$

(viii) solving non-linear inequalities (the methods I've touted in class show up in sections 1.7 and in section 1.3)

(ix) evaluation and graphing of a piecewise-defined function

(x) the average rate of change of a function between two values

(xi) ungraphing a parabola, that is, find a formula from the graph

(xii) given a quadratic functions, find its graph, intercepts, vertex...

(xiii) setting up and simplifying difference quotients (and yes, you are expected to know the difference-quotient formula)

(xiv) setting up and solving a "parabolic" max-min problem

6 Here are some grammar points the corporate we needs to keep in mind:

(a) Distributing minus signs through parentheses: $\boldsymbol{-(-3x+4y-2z)=3x-4y+2z.}$

(b) $\boldsymbol{(}$binomial$\boldsymbol{)^2}$ = TRInomial**.**

(c) Crowding errors.

(d) Labeling important points directly with their coordinates. Like, put the label right up next to the thing being labeled. Tickmarks don't serve; coordinate labels do.

7 On page 135 is a purple-page "test" which has a full answer key in the back of the book. The currently fair-game types of problems:

(i) 11(b) and 11(d) on non-linear inequalities

(ii) 13, which is a domain problem which is also a non-linear inequality problem.

8 On page 237 is a chapter-two purple-page "test" which has a full answer key in the back of the book. The currently fair-game types of problems:

(a) Problem 1: VLT and HLT

(b) Problem 2: domain and difference-quotient-style substitutions

(c) Problem 3: AROC, which is really a slope

(d) Problems 4 and 5: the page-166 Friendly-Faces list and the section-2.4 moves

(e) Problem 6: the most basic quadratic-graphing problem

(f) Problem 7: a piecewise function with a VLT-compliant graph.

(g) Problem 8: No points for "guess-and-check". Points are for cooking up the function in 8(a), and then using the graph of the function from 8(a) to answer 8(b). A better problem would be to increase the amount of fence by 5 feet and draw another separator line longways so that there are ten pens. Give the answer in feet and inches – no decimals allowed.

Note that 8(b) does not ask for the maximum area; it only wants to know outer plot dimensions that will yield the maximum area.

(h) Some abstract max-min problems like problem 8:

(i) Find numbers $\boldsymbol{x}$ and $\boldsymbol{y}$ whose sum is **100** and which minimize $\boldsymbol{S}$**,** where $\boldsymbol{S=x^2+2^y}$**.** Here they want $\boldsymbol{x_{min}}$**,** $\boldsymbol{y_{min}}$**,** and $\boldsymbol{S_{min}}$**.**

(ii) Optimize $\boldsymbol{A}$, where $\boldsymbol{A = xy}$ and $\boldsymbol{5x - 2y = 7}$. Here you need to figure out which of $\boldsymbol{A_{min}}$ or $\boldsymbol{A_{max}}$ is in order.

(i) Problem 9: function composition

(j) Problem 10: inverses and section-2.4 moves. The graph of $\boldsymbol{f}$ is a reflection of the graph of $\boldsymbol{y = \sqrt{x}}$ over which vertical line? The domain and range for $\boldsymbol{f}$ and for $\boldsymbol{f^{-1}}$.

(k) Problem 11: more inverses.

(l) Problem 12: a good with-calculator part of the exam.

9 Comments on problems in the MATH-143 Test #1 for 9/21/05.

(a) Problem 10 - sign-change-chart gig. Section 1.7, like. This is a big deal in MATH 160 and MATH 170. We will be needing to take it up again in section 3.1.

(b) Ignore problem 11.

10 Relevant problems from MATH-143 Test #1 for 9/27/02:

(a) Problem 2: non-linear inequality again

(b) Problem 3: piecewise with a VLT-compliant graph. We are now in a position to use hunks of page-166 functions for the pieces.

(c) Problem 4: ungraph a parabola as in problem 2 of the 10/12/07 quiz from last Friday

(d) Problem 8: Graph a quadratic function by computing the salient points.

(e) Problem 9: the section-2.4 moves. Does this function have an inverse? What is its domain? Its range? Can you ungraph it? That is, can you write a piecewise function definition for it?

11 Relevant problems from the MATH-143 Test #2 for 10/26/05:

(a) Problem 1 is a better problem if it appears on the non-calculator side of the test. One has to square a binomial correctly and rationalize a denominator.

(b) Problem 4: compositions and inverses

(c) Problem 5: page 166 and the section-2.4 moves

(d) Problem 6: ungraph!

(e) Problem 7: parabolic-optimization story problem.

12 Relevant problems from the MATH-143 Test #2 for 11/4/02:

(a) Problem 1: graph a quadratic function and label salient points directly.

(b) Problem 2: a domain problem which can be solved using the results of problem 1.

(c) Problem 7: inverses