You have 60 minutes to complete this test. You must *show all work* to receive full credit. Work any 6 of the following 7 problems. Clearly **CROSS OUT** the problem you do not wish me to grade. Each problem is worth 16 points, and you get 4 points for free, for a total of 100 points. The answers will be posted on the electronic reserves later today.

1.   Solve $\dfrac{dy}{dx} = \dfrac{1}{y^2(2x-5)^6}$ if $y = 0$ when $x = 2$.

2.   Find $f'(x)$ for the following functions. DO NOT simplify!

   (a) $f(x) = x^2 \ln(3x)$

   (b) $f(x) = \sqrt{e^{x^2-6} + 4x}$

3. Suppose you want to have $15,000 three years from now in order to purchase a car. How much will you need to invest in one lump sum now at an annual rate of 6% compounded monthly in order to reach your goal?

4. Suppose that the number of hamburgers sold by a national fast-food chain grows exponentially. If 4 billion were sold by 2005 and 12 billion had been sold by 2010, in what year will sales reach the 25 billion mark?

5. a)   If $\log_3 x = 2\log_3 6 - \log_3 7$, find x. Your solution should be a rational number.

    b)   If $\log_3 x = 6$, $\log_3 y = \dfrac{1}{2}$, and $\log_3 z = 3$, calculate $\log_3 \dfrac{\sqrt{x}}{y^2 z}$.

6.   Evaluate the following integrals:

    a) $\displaystyle\int 5e^{3x}\, dx$

    b) $\displaystyle\int \frac{3x - \sqrt{x}}{x^2}\, dx$

    c) $\displaystyle\int 2xe^x\, dx$

7. Find all maxima, minima and inflection points of $f(x) = xe^x$. (If there are none, say so.) Also give the intervals where f is increasing, decreasing, concave up, and concave down. Find all asymptotes (or say there are none). Then carefully sketch the graph of f. Be sure to label the asymptotes, extrema, and inflection points.

Monthly, Semi-Monthly

Missing Items Lists – Send to Kellie in cat – currently file 303

Other Lists to generate?

Mobius Reports

Cull and act on information – either file xcel workbooks in month folders or add sheet for each month to current year workbook

Counts report – Web Management – see Circ Notes for process

http://merlin.mobius.umsystem.edu:6060/iii/webrpt/Splash.html

Billing – moving current month to Awaiting 30 days – verify if paid/returned, etc..

Block awaiting 30 days that are not clear – change MBlock and JoeSS record

File blocked students in drawer

Patron Accounts filed in Yellow folder

Weekly

Mobius Paged too long report

Cash drawer – Friday,Saturday and covering

Morning Notices and Morning Mail – same

Supervisor Desk Tuesday -12-3, Thursday 12-3, and Friday 10-12

Tally-Door Counts, Use Counts

High Demand Holds?

Daily

Verify new Patron accounts Sheet data items, add to pile, or file problem sheets in plastic folder

Billing notices – survey issue, status of patron, clarify $min for paperback/hardback, waive as appropriate, attach check off list for billing, file in current month

Have Student perform daily search for missing items (Weekly?)

TimeSheet Recording

As Needed

Check task list for pending activities

Initiate Searches for NOS items -

To Do

Decisions on email folders organization