The outcomes list has been updated for Exam 3.

The following information is for reviewing for the material of Exam 3.

**The material for Exam 3 is from sections 8.5, 9.1, 9.3**

8.5 Given a rational function, be able to write down the form of the guess of the partial fraction expansion. Be able to do long division if the degree of the numerator is equal to, or larger, than the degree of the denominator. In the simplest case where the denominator factors completely with no repeated factors, be able to compute the coefficients of the partial fraction expansion.

In addition to reviewing assigned problems from 8.5, look at (all references to section 8.5):

Problem 20; Example 1.

9.1 Given a differential equation, be able to test if a given function is a solution or not. Given a family of solutions with an arbitrary constant $C$, be able to use initial condition information to solve for the appropriate value of $C$. Be able to recognize if a differential equation is separable, and if so, solve it using the separation process. It is **NOT** necessary to know the method of integrating factors for first order linear equations, but it will not hurt you to know it.
In addition to reviewing assigned problems from 9.1, look at (all references to section 9.1):

Example 7; Regular problems 43, 44, 46 (45 is similar, but requires integrating factors).

9.3 Be able to work with exponential decay and growth problems. Understand half-life and how to compute it, if you are given a solution in exponential form (with $e$). Given data about a population (such as values at two distinct times), be able to compute its initial condition and exponential form.

In addition to reviewing assigned problems from 9.3, look at (all references to section 9.3):

Problems 19, 22; Example 3

The preceding material is for reviewing for the material of Exam 3.

The following information is for reviewing for the material of Exam 2.

The material for Exam 2 is from sections 7.1, 7.2, 7.7, 8.2

7.1 Find the area between the graphs of two functions over an interval of interest. Find the area enclosed by two graphs which intersect.
In addition to reviewing assigned problems from 7.1, look at (all references to section 7.1):

Examples 2, 4, and 5; Regular Problems 3, 4, 14, 18

7.2 Find the volume of a figure of known cross-sectional areas. Find the volume of the solid of revolution the graph of a function over an interval of interest, rotated about a given axis. Find the volume of the solid between two such rotated graphs.

In addition to reviewing assigned problems from 7.2, look at (all references to section 7.2):

Examples 4, 5; Quick Check Problem 1,4; Regular Problems 6, 36

7.7 Define work as an integral. Relate work to gravitational force (weight) and altitude. Calculate work done in different physical circumstances - by a varying force as a function of position in an interval; by constant forces acting over different distances in an extended body. Under certain circumstances, it is useful to set up a Riemann sum for the problem, which will tell you the relevant integral for the problem.

In addition to reviewing assigned problems from 7.7, look at (all references to section 7.7):

Examples 3, 5; Regular Problems 14, 16.

8.2 State the rule for integrating functions by parts. By practice, you should be able to quickly make the
assignment of \( f \) and \( g' \) (or \( u \) and \( dv \)). Be able to do repeated integration by parts, to reduce the problem to a simpler, doable one.

In addition to reviewing assigned problems from 7.2, look at (all references to section 7.2):

Examples 4, 6; Quick Check Problem 3; Regular Problems 7, 12, 39