

Review 1 Math 361

Any term in **bold face** know the definition well enough to state it on the test. The definition you give should be very similar to the one in the book or one with similar detail.

Section 1.1 **order of a differential equation, linear differential equation**

Section 1.2 **Initial value problem, initial conditions**

Section 2.1 **autonomous differential equation** attractor, repeller
Sample problems Example 5 Exercise 7

Section 2.2 **separable differential equation**, integral solution
Sample problems Example 3,4 Exercises 21,25

Section 2.3 **First order linear equation, integrating factor for linear equations**,
Sample problems Example 5,6,7 Exercises 19,27

Section 2.4 **exact equation, integrating factor for exact equations**, [Know proof of Theorem 2.4.1](#)
Sample problems Example 1, 2,3 Exercises 31

Section 2.5 **homogeneous DE, Bernoulli DE** , linear substitution
Sample problems Example 1 Exercises 1,11 ,17,25

Section 3.1 **Know standard differential equations for: Growth/Decay(1), Newton's Law of Cooling (2), Mixtures (5)**,
Sample problems Example 1,2,4,5

Section 3.2 **Know standard differential equations for: Logistic Growth (4), Second order Chemical reactions (9)** ,
Sample problems Example 1,2

Section 4.1 Linear Dependence/Independence **Wronskian** , Fundamental set of solutions, general solution
Sample problems Example 9 Exercises 15 ,21,

Section 4.2 $y_2 = y_1(x) \int \frac{e^{-\int P dx}}{y_1^2(x)} dx$.
Sample problems Exercises 1,2, 10,11