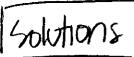
Math 333 Quiz 8



Thursday, April 10, 2008

1. Let p>0 and q>0 denote real, positive constants, and let g(t) be a continuous function of t. Suppose that $2e^{-t}+\sin t+4$ is a particular solution of the differential equation y''+py'+qy=g(t). Let y(t) denot the general solution of the differential equation. Describe the behavior of y(t) as $t\to\infty$. Does the behavior of y(t) depend on the initial conditions?

since p, 9>0, /n(t) -10 as t-10.

Thus yct) -> 2e-t+snt+4 as t-100.

2. Find the general solution of the differential equation y''' - y'' - y' + y = 0.

$$r^3 - r^2 - r + | = 0 \quad r = -1, 1, 1$$

3. Find the general solution of the differential equation $y''' - y' = 2 \sin t$.

$$r^3 - r = 0$$
 $r(r^2 - 1) = 0$ $r = 0, \pm 1$

The general solution 18: