**P1013:**

**4.Solution:** The auxiliary equation is



then the root is , therefore, the general solution is

** 20. Solution:** The auxiliary equation is



then the roots are , therefore, the general solution is

****

1. **Solution:** The auxiliary equation is



then the roots are , therefore, the general solution is

****

From  we can find , then the particular solution is

****

**P1022：**

1. **Solution：**The auxiliary equation of complementary equation is



then the roots are , and the general solution of complementary equation is



Since  is not the root of auxiliary equation, then we can let the particular solution be ,therefore



Substitute above in the original ODE, then



That is , then



We can find



Then the particular solution is , and the general solution of original ODE is



1. Solution:The auxiliary equation of complementary equation is



then the roots are , and the general solution of complementary equation is



Since are the roots with multiplicity 1, and  is not the root of auxiliary equation, then we can let the particular solution be ,therefore



Substitute above in the original ODE, then



That is

,

then



We can find



Then the particular solution is , and the general solution of original ODE is



1. Solution:The auxiliary equation of complementary equation is



then the roots are , and two linearly independent solutions are



the general solution of complementary equation is



Suppose the general solution of the original ODE is



then  satisfy



We can find





then



Therefore, the general solution of the original ODE is

