

MTH 3311 Test #2

SUMMER 2016

Pat Rossi

Name _____

Show CLEARLY how you arrive at your answers

1. Solve, using the Method of Undetermined Coefficients:

$$y'' + y' - 6y = 36 \cos 3x - 24 \sin 3x$$

2. Solve, using the Method of Transformation of Variables:

$$y'' + y = \tan(x)$$

From exercises #3 and #4, select one.

3. The water in a jacuzzi is heated to 100° F and then the heating elements are turned off. After 1 hour, the temperature of the water is 80° F. If the temperature of the room is a constant 70° F, what will the temperature of the water in the jacuzzi be after 3 hours?
4. 100 kg of a radioactive substance is stored safely away. In 10 years, only 95 kg of the substance will remain. How much of the substance will remain in 100 years?