1 Instructions

1. Answers need to be rounded to the nearest whole number. Intermediate step answers (such as the final answer of each portion of a double integral) should also be rounded to the nearest whole number.

2. Fractions MUST be evaluated as fractions. No rounding of any fractions should be done. Eg $\frac{2}{3} \neq 0.67$

3. All passcodes must be given as whole, absolute-value numbers.

4. If you have solved this by hand, send us pictures of your working out! The same applies for code that you used to help you solve all the problems.

2 Differential Equation

Solve the following Second-Order Differential Equation, ensuring that the solution is arranged so that the exponential powers are in descending order.

$$5\frac{d^2y}{dt} - 45\frac{dy}{dt} + 100y = 0; y'(0) = 14, y(0) = 6 \tag{1}$$

At time, t=5.05, a particular event takes place.