Math 252 Assignment

Name: _____

This assignment has 4 questions.
Total: 18 Marks

You may discuss with others but you may not copy another person's work.
Show all your work for full marks.

Submit a paper copy in class.
If you cannot submit in class then you may submit to the D2L Dropbox.

1. [4 marks] Solve using the Laplace transform:
$y'' - 10y' + 24y = 2e^{4t}, y(0) = 8, y'(0) = -3$

2. [5 marks] Solve using the Laplace transform:
$y'' - 3y' = 10e^t \sin t, y(0) = 0, y'(0) = 0$

3. [5 marks]

a) Solve using the Laplace transform:

$y' + 8y = f(t), y(0) = 0$, where $f(t) = \begin{cases} 0, & 0 \leq t < 3 \\ 9, & t \geq 3 \end{cases}$

b) Find $y(1)$

c) Find $y(4)$

4. [4 marks] Solve for $f(t)$:

$f(t) = t^2 - \int_0^t f(\theta) e^{t-\theta} d\theta$