Quiz 4

For the first two questions each part is worth 10 points. There is ***no partial credit*** *for this part, please do this part carefully. For the third question write down all the details.*

There is no need to simplify your final answers.

1. Using the table, find the Laplace transform of the following functions:

1) $f(t) = \begin{cases} e^{-t} + t & \text{for } t \geq 1 \\ 0 & \text{else} \end{cases}$

2) $e^{2t+1}(t+2)(t-2)$

3) $\delta(t-3) + u(2t-1)$

2. Using the table, find the inverse Laplace transform of the following functions:

1) $\dfrac{s-1}{s^2+2s}$

2) $\dfrac{e^{-2s}+1}{s^2+2}$

3) $(2s+1)^{-3}$

4) $\left(e^{-3s} + \dfrac{1}{s}\right)\left(1 - \dfrac{1}{s}\right)$

3. Solve the following IVP

$$y' - 2y = \delta(t-1) - c.\delta(t-2)$$
$$y(0) = 0$$

where c is a positive constants. For what value of c is the solution 0 for $t > 2$.