Use Laplace transforms to compute the solution to the differential equation given below.

$$\frac{d^{2}y(t)}{dt^{2}}+6\frac{dt}{dt}+8y=u\left(t\right) where y\left(0\right)=0;\dot{y}\left(0\right)=1$$

Compute the inverse Laplace transform of:

X(s)= 3s2+2s+1

 \_\_\_\_\_\_\_\_\_\_\_

 s3+5s2+8s+4