1. A graph of $y = f(t)$ is given below.

Express $f(t)$ using Heaviside functions and determine the Laplace transform of $f(t)$.

2. Express the following function using Heaviside functions and determine its Laplace transform.

$$g(t) = \begin{cases} 
2, & t < 3 \\
e^{-2t}, & 3 < t
\end{cases}$$
3. Find the inverse Laplace transform of the following.

\[ F(s) = \frac{4se^{-2s}}{s^2 + 2s - 3} \]