1. In the differential equation below, we know that if the input \( u(t) \) is a constant, then \( x(t) \) will become a constant (the final value of \( x \)) as \( t \to \infty \). Approximately how long will it take for \( x(t) \) to reach its final value within 1%?

\[
\ddot{x} + 12\dot{x} + 20x = 40u
\]

Using \( s \) instead of \( t \) is better.!

\[
x(t) = \frac{u_0}{4^2 + 12^2 + 20}
\]

\[
sT_1 = \frac{1}{25}
\]

\[
sT_2 = \frac{3}{10}
\]

2. Given the MATLAB commands below, what will be the result?

\[
\begin{align*}
&n=[2 \ 3 \ 4]; \\
&d=[1 \ 5 \ 6 \ 7]; \\
&G=tf(n,d)
\end{align*}
\]