1. [10 pts. each] Find the inverse Laplace transform of each function.

   (a) $F(s) = \dfrac{s + 11}{(s - 1)(s + 3)}$

   (b) $F(s) = \dfrac{2s - 1}{s^2 - 4s + 6}$

2. [10 pts.] Express using unit step functions:

$$f(t) = \begin{cases} -3, & 0 < t < 4 \\ 5, & 4 < t < 9 \\ t - 4, & t > 9 \end{cases}$$

3. [20 pts.] Solve the IVP using the Method of Laplace Transforms:

$$y'' + 9y = 10e^{2t}, \quad y(0) = -1, \quad y'(0) = 5$$

4. [20 pts.] Solve the IVP using the Method of Laplace Transforms:

$$y'' + 4y' + 4y = u(t - \pi) - u(t - 2\pi), \quad y(0) = 0, \quad y'(0) = 0$$