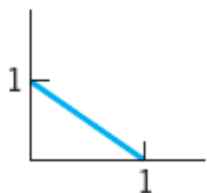
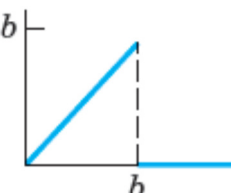
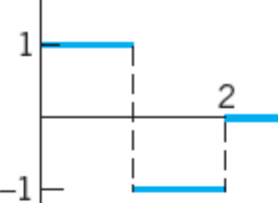
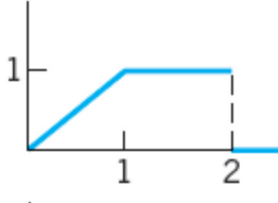
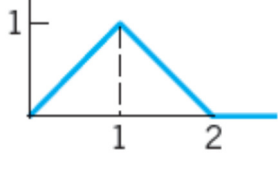


### Laplace Transform Practice Problems

| $f(t)$ |                                                                                   | ODE                                                |
|--------|-----------------------------------------------------------------------------------|----------------------------------------------------|
| 1      |  | a. $y'' - y' - 6y = f(t)$ , $y(0)=1$ , $y'(0)=2$   |
| 2      |  | b. $y'' - 6y' + 5y = f(t)$ , $y(0)=2$ , $y'(0)=1$  |
| 3      |  | c. $y'' - 4y' + 4y = f(t)$ , $y(0)=1$ , $y'(0)=-1$ |
| 4      |  | d. $y'' + 5y' + 6y = f(t)$ , $y(0)=-1$ , $y'(0)=2$ |
| 5      |  |                                                    |
| 6      |  |                                                    |

#### Question

- Find the Laplace transform of  $f(t)$ , then solve the ODE.
- Find the unit impulse response of the system specified by the ODE, then find the output corresponding to  $f(t)$ .