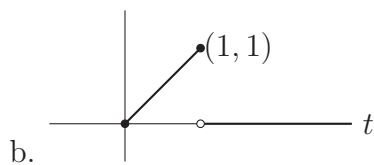


1. Apply the definition of a Laplace Transform directly to find $F(s)$ for the following functions.

a. $f(t) = t^2$

c. $f(t) = \sin^2(t)$



2. Use the pre-determined transforms list to find the Laplace transforms of the following functions. A preliminary integration by parts may be necessary.

a. $f(t) = \cos^2(2t)$

c. $h(t) = te^t$

b. $g(t) = 3t^{5/2} - 4t^3$

d. $k(t) = t \cos(2t)$

3. Use the pre-determined transforms list to find the inverse Laplace transforms of the following functions.

a. $F(s) = s^{-3/2}$

c. $F(s) = 2s^{-1}e^{-3s}$

b. $F(s) = \frac{9+s}{4-s^2}$

d. $F(s) = \frac{3}{s-4}$