

Name: _____

1. [4 parts, 1.5 points each] Compute the following.

(a) $\mathcal{L}\{2 + te^{-t}\}$

(b) $\mathcal{L}\{\cosh(5t) + \sin(3t)\}$

(c) $\mathcal{L}^{-1}\left\{\frac{1}{(s-5)^2 + 7}\right\}$

(d) $\mathcal{L}^{-1}\left\{\frac{3s+1}{s^2+6s+5}\right\}$

2. [4 points] Use the Laplace transform to solve $y'' - 4y' + 3y = \cos t$ with $y(0) = 1$ and $y'(0) = -1$.