

MATH 250
FALL 2006
EXAM 5

NAME:

1. 10 pts. Use the definition of the Laplace transform to find the Laplace transform of the function $\sin(t + 2)$.
2. 10 pts. Determine the Laplace transform of $(t - 2)^4$ using the table provided.
3. 10 pts. Determine the Laplace transform of $\sin 2t \sin 5t$ using an appropriate trigonometric identity and the table provided.
4. 10 pts. Determine the inverse Laplace transform of $\frac{2s + 16}{s^2 + 4s + 13}$.
5. 20 pts. Use the Laplace transform to solve the IVP: $y'' - 4y' + 5y = 4e^{3t}$, $y(0) = 2$, $y'(0) = 7$.
6. 20 pts. Use the Laplace transform to solve the IVP: $y'' + 5y' + 6y = tu(t - 2)$, $y(0) = 0$, $y'(0) = 1$.