Partial Fractions Worksheet

When solving differential equations using the Laplace transform, we often have to use partial fraction decomposition, which is a way of rewriting rational functions (functions with one polynomial divided by another) as a sum of simpler functions.

The goal of this worksheet is to get some practice doing partial fraction decomposition, using a handy technique known as the "cover-up" method. You may have already seen this in Math 125 or another calculus class. In each of the following problems, find the partial fraction decomposition:

1. $\dfrac{(s+1)(s+2)}{s(s^2+2s-3)}$.

2. $\dfrac{2s-3}{(s^2+1)(s^2-4s+5)}$.

(continued on back)

3. $\dfrac{8}{(s-1)(s-3)^3}$.