ME 106/227
Spring 2002
Tire Parameters for Final Project

The following sets of parameters give reasonable values for a sports car, sports sedan, truck or SUV. If you are designing something else, let us know by Wednesday, May 29 and we will generate more appropriate numbers for you.

Tire Parameters for Sports Car or Sports Sedan
η is a tunable parameter and can range from –0.2 to 0.2.

$a1 = -30.0*(1-2* \eta)$;
$a2 = 1011*(1-0.5* \eta)$;
$a3 = 1078*(1- \eta)$;
$a4 = 1.82$;
$a5 = 0.3$;
$a6 = 0$;
$a7 = -0.354$;
$a8 = 0.707$;
$a9 = 0.028$;
$a10 = 0.0$;
$a11 = 14.8$;
$a12 = 0.022$;

Unsprung mass = (10% of car mass)*(1- η)
Tire stiffness = 250000*(1- η)

Tire Parameters for Truck or SUV

$a1 = -28.0*(1-2* \eta)$;
$a2 = 850*(1-0.5* \eta)$;
$a3 = 700*(1- \eta)$;
$a4 = 1.82$;
$a5 = 0.22$;
$a6 = 0$;
$a7 = -0.354$;
$a8 = 0.707$;
$a9 = 0.028$;
$a10 = 0.0$;
$a11 = 7.0$;
$a12 = 0.022$;

Unsprung mass = (10% of car mass)*(1- η)
Tire stiffness = 150000*(1- η)