

```

[ > X:=matrix(4,7,[-55,90,88,68,40,5,27,
                  37,-38,64,-84,21,66,7,
                  -94,-46,-22,80,55,-83,97,
                  -65,28,-37,23,61,-26,31]);
                  X:=
                  [-55  90  88  68  40  5  27]
                  [ 37 -38  64 -84  21  66  7 ]
                  [-94 -46 -22  80  55 -83  97]
                  [-65  28 -37  23  61 -26  31]
[ > with(linalg): X:=transpose(X): X:=augment(matrix(7,1,1.),X):
Warning, the protected names norm and trace have been redefined and unprotected
[ > w:=[4,2,1,5,2,3,1]: W:=matrix(7,7,0):
[ > for i to 7 do W[i,i]:=w[i] od:
[ > y:=[20,253,209,513,-62,-32,131.]:
[ > C:=evalm(inverse(transpose(X)*W*X)):
[ > beta:=evalm(C*transpose(X)*W*y):
                β := [109.3770534, 2.214927176, -3.003150481, 1.044842777, -3.909860034]
[ > e:=evalm(y-X*beta): MSe:=sum('w[i]*e[i]^2','i'=1..7)/2;
                MSe := 2569.802016
[ > ste:=[0,0,0,0,0]: with(stats):
[ > for i to 5 do ste[i]:=sqrt(MSe*C[i,i]) od:
[ > tcr:=statevalf[icdf,studentst[2]](.95):
[ > for i to 5 do [beta[i]-tcr*ste[i],beta[i]+tcr*ste[i]] od;
                [61.00025891, 157.7538479]
                [1.099578968, 3.330275384]
                [-3.924832987, -2.081467975]
                [.1391097409, 1.950575813]
                [-5.575657490, -2.244062578]
[ > chi1:=statevalf[icdf,chisquare[2]](.95):chi2:=statevalf[icdf,chisq
uare[2]](.05):
[ > [sqrt(MSe*2/chi1),sqrt(MSe*2/chi2)];
                [29.28858117, 223.8306398]
[ > beta[2]/ste[2];
                5.798687232
[ > statevalf[icdf,studentst[2]](.975);
                4.302652730
[ >

```