Sets

 i canning plants / seattle, san-diego /

 j markets / new-york, chicago, topeka / ;

Parameters

 a(i) capacity of plant i in cases

 / seattle 350

 san-diego 600 /

 b(j) demand at market j in cases

 / new-york 325

 chicago 300

 topeka 275 / ;

Parameter d(i,j) distance in thousands of miles New-York Chicago ;

$call gdxxrw.exe transport.xls par=d rng=Distances!A1:D3 rdim=1 cdim=1 trace=3

$gdxin transport.gdx

$load d

$Gdxin

\*Table d(i,j) distance in thousands of miles

\* new-york chicago topeka

\* seattle 2.5 1.7 1.8

\* san-diego 2.5 1.8 1.4 ;

Scalar f freight in dollars per case per thousand miles /90/ ;

Parameter c(i,j) transport cost in thousands of dollars per case ;

 c(i,j) = f \* d(i,j) / 1000 ;

Variables

 x(i,j) shipment quantities in cases

 z total transportation costs in thousands of dollars ;

Positive Variable x ;

Equations

 cost define objective function

 supply(i) observe supply limit at plant i

 demand(j) satisfy demand at market j ;

cost .. z =e= sum((i,j), c(i,j)\*x(i,j)) ;

supply(i) .. sum(j, x(i,j)) =l= a(i) ;

demand(j) .. sum(i, x(i,j)) =g= b(j) ;

Model transport /all/ ;

Solve transport using lp minimizing z ;

Display x.l, x.m ;