ProblemF
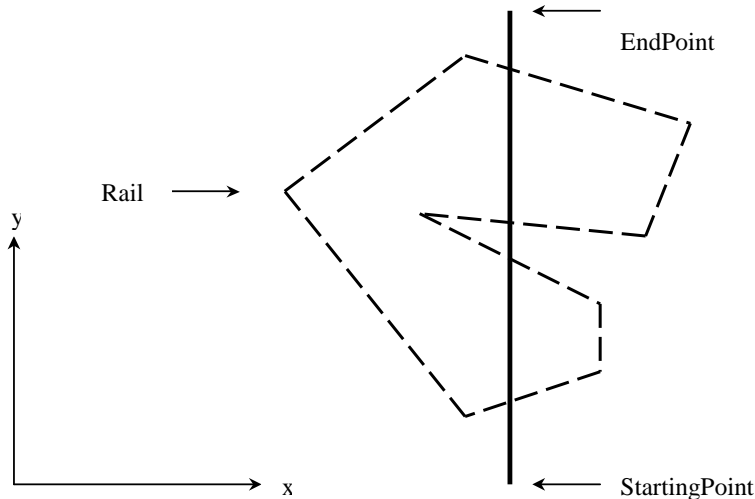
(Programfilename:F.CPPorF.PAS)

Trains

Intheyear2030tosolvethetrafficandairpollutionproblemofTehran,theinteriorministryfinallydecidestocloseall internalcitystreetsexceptthemainstreet,Vali -eAsrandstartusingelect ricaltrains.Thereisonlyonerailforthese trainsthatisasimplepolygon(apolygonthatdonotcrossitself)andtherearesometrainsontherail.Thefigureshows asamplemapoftherailandstreet.Ehsanwantstogofromthemostsouthernparto fVali -eAsrtothemostnorthern part.Hisproblemisthathehasanemergencyworkatthenorthernpartsohewantstopassthestreetasquickas possible,butbecausehelikeshislife(!)hedoesn'twanthiscartobecrashedbyanyelectricaltrain. Therailcrosses thestreetinsomepointsthatwecall *crosspoint* .Eachtrainhasaconstantlengthandspeedandwhenatrainisgoing acrossthestreet,nocarmustbeontherail.Nopartoftherailisalongthestreet.Ehsanknowsthepositionofea chtrain andhewantstoscheduleadrivingplaninwhichhestops *only* **on**somecrosspointsoronthestartingpoint,and movingduringotherpartsofthestreetbytheknownconstantspeedofhiscar(notethatwheneverheisstoponacross pointthere mustnotbeanytrainspassingthesamecrosspoint).Helphimfindingsucharoad.

Input (filename:F.IN)

Eachtestcasebeginswithalinecontaining6numbers,inthefollowingorder:numberofverticesoftherailro ad(less than50),numberoftrains(lessthan20),coordinatesoftheendpoint,velocityoftrainsandvelocityofEhsan'scar.In nextlines,verticesoftheroadpolygonarelistedinthesameorderastrainsvisitthem.Then,eachtrainisdescribedi na separatelinebythreenumbers:coordinatesofitshead *(x,y)* anditslength.Notwotrainsintersect. *y*coordinateofthe startingpointis0andits *x*-coordinateissameastheendpoint.Thefinaltestcaseisstartedwith6zeros.

Output (filename:F.OUT)

Writethelengthofthesmallestperiod,duringwhichEhsancouldsafelygofromsouthtowest.Thisnumbermustbe roundedtofourdigitsafterdecimalpointandtheoutputmustcontainexactlyfourdigitsafterthedecimalpoint.

SampleInput   SampleOutput

```
4 1 10 30 1 2              20.0000
0 10
30 10
30 20
0 20
5 10 5
0 0 0 0 0 0
```