

SUBROUTINE ENERGY\_2D(PM,PE,PTT,PPV,X,Z,S,F,FFB,NP,N1,N2,ID)

- ! 水面上無結構物
- ! ID: 邊界面數
- ! NP: 全部元素數
- ! N1: 假想邊界面元素數
- ! N2: 結構物右邊靜水面元素數



REAL X(NP),Z(NP),F(NP),FFB(NP),S(NP)

C=.57735

gr=9.81

SMAX=S(1)

DO I=1,NP-ID

IF(S(I).GT.SMAX) SMAX=S(I)

END DO



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ISURFACE=0

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INDEX=0

PM=0

PTT=0

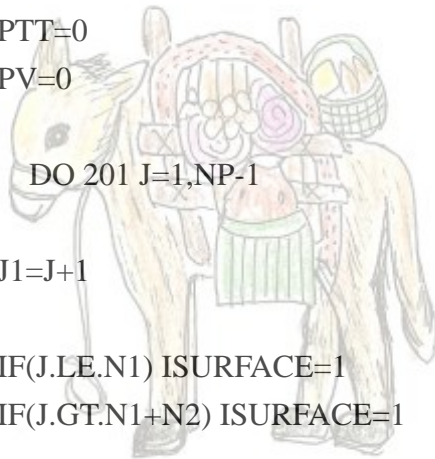
PV=0

DO 201 J=1,NP-1

J1=J+1

IF(J.LE.N1) ISURFACE=1

IF(J.GT.N1+N2) ISURFACE=1



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XJ=X(J)

ZJ=Z(J)



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XJ1=X(J1)

ZJ1=Z(J1)

IF(XJ.EQ.XJ1.AND.ZJ.EQ.ZJ) INDEX=INDEX+1

R=SQRT((XJ1-XJ)\*\*2+(ZJ1-ZJ)\*\*2)

IF(R.GT.SMAX) INDEX=INDEX+1

SJ=S(J-INDEX)

FF=F(J)

FB=FFB(J)

FF1=F(J1)

FB1=FFB(J1)

U1=((1+C)\*\*2+(1-C)\*\*2)\*FF\*FB

U2=2\*(1-C\*\*2)\*(FF\*FB1+FF1\*FB)

U3=((1-C)\*\*2+(1+C)\*\*2)\*FF1\*FB1

PTT=PTT+(U1+U2+U3)\*SJ/16.

IF(ISURFACE.EQ.1) GO TO 201

PM=PM+(ZJ1+ZJ)\*ABS(XJ1-XJ)/2

PV=PV+.5\*GR\*(ZJ1\*ABS(ZJ1)+ZJ\*ABS(ZJ))\*ABS(XJ1-XJ)/2

201 CONTINUE

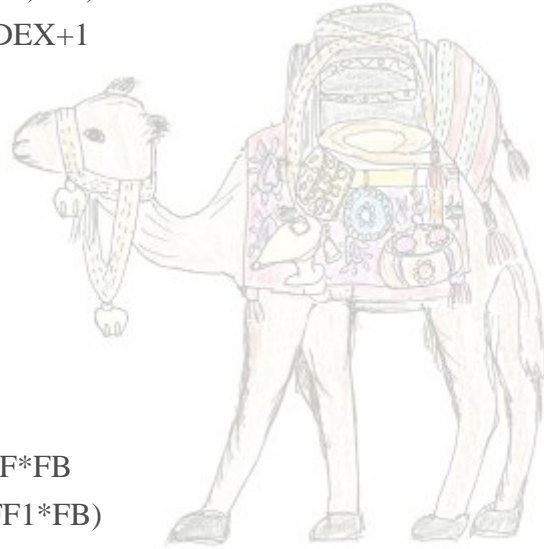
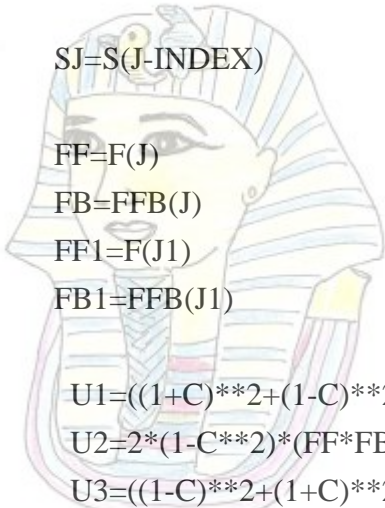
PE=ABS(PTT)+ABS(PV)

PtT=(ABS(PTT)/PE)\*100

PPV=(ABS(PV)/PE)\*100

RETURN

END



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