```
*==> ztop.f <==
      FUNCTION ZTOP(XT,XTY)
      IMPLICIT DOUBLE PRECISION(A-H, O-Z)
      DOUBLE PRECISION XTY(NUU)
      COMMON /NUEQ/ NUU
      COMMON/WUR/WUR,CONPI
      COMMON/SCALE/AMGUT,SUSY,AMZ,AMW
CC
      SCALO=AMGUT*DEXP(-.5D0*XT)
      ZTOP=(WUR*DSQRT(XTY(4)))*XTY(33)-
     #SCALO/(1.D0+4.D0*XTY(3)*5.D0/3.D0)
      RETURN
      END

*==> g.f <==
      FUNCTION G(X,Y)
      IMPLICIT DOUBLE PRECISION (A-H, O-Z)
      IF(X*Y.LT.0.D0)THEN
        WRITE(96,'(A)')'PROBLEM WITH FUNCTION G'
        STOP
      ENDIF
      G=2.D0-((X+Y)*DLOG(X/Y))/(X-Y)
      RETURN
      END

*==> zsusy.f <==
      SUBROUTINE ZSUSY(AMSUSY,AMSUSYT,AMTOP,AMCHIGGS,AMSTOP1,
     #AMSTOP2,AMSUP,AMSUPC,AMSBOT1,AMSBOT2,AMSDOWN,AMSDOWNC,AMSTAU1,
     #AMSTAU2,AMSL,AMSLC,AMCHARG1,AMCHARG2,AMGLU,AMZ,AMW)
CC
      DOUBLE PRECISION AMSUSY,AMSUSYT,AMTOP,AMCHIGGS,AMSTOP1,
     #AMSTOP2,AMSUP,AMSUPC,AMSBOT1,AMSBOT2,AMSDOWN,AMSDOWNC,AMSTAU1,
     #AMSTAU2,AMSL,AMSLC,AMCHARG1,AMCHARG2,AMGLU,AMZ,AMW
C-----------------------------------------
C   Definition of Msusy - Msusy tilde
C-----------------------------------------
      AMSUSY=((AMTOP**(16.D0/9.D0))*(AMW**(-7.D0))*
     #(AMCHIGGS**(1.D0/3.D0))*(AMSTOP1**(4.D0/9.D0))*
     #(AMSTOP2**(4.D0/9.D0))*(AMSUP**(8.D0/9.D0))*
     #(AMSUPC**(8.D0/9.D0))*(AMSBOT1**(1.D0/9.D0))*
     #(AMSBOT2**(1.D0/9.D0))*(AMSDOWN**(2.D0/9.D0))*
     #(AMSDOWNC**(2.D0/9.D0))*(AMSTAU1**(1.D0/3.D0))*
     #(AMSTAU2**(1.D0/3.D0))*(AMSL**(2.D0/3.D0))*
     #(AMSLC**(2.D0/3.D0))*(AMCHARG1**(4.D0/3.D0))*
     #(AMCHARG2**(4.D0/3.D0)))/(AMZ**(19.D0/9.D0))
CC
      AMSUSYT=(AMTOP**(2.D0/3.D0)*AMSTOP1**(1.D0/6.D0)*
     #AMSTOP2**(1.D0/6.D0)*AMSBOT1**(1.D0/6.D0)*AMSBOT2**(1.D0/6.D0)*
     #AMSUP**(1.D0/3.D0)*AMSUPC**(1.D0/3.D0)*AMSDOWN**(1.D0/3.D0)*
     #AMSDOWNC**(1.D0/3.D0)*AMGLU**(2.D0))/(AMZ**(11.D0/3.D0))
CC
      RETURN
      END

*==> zglu.f <==
      FUNCTION ZGLU(QT,QTY)
      IMPLICIT DOUBLE PRECISION(A-H, O-Z)
      DOUBLE PRECISION QTY(NUU)
      COMMON /NUEQ/ NUU
      COMMON/SCALE/AMGUT,SUSY,AMZ,AMW
CC
      SORKI=AMGUT*DEXP(-.5D0*QT)
```



```
      ZGLU=QTY(9)-SORKI
      RETURN
      END

*==> zero.f <==
      FUNCTION ZERO(X,YY)
      IMPLICIT DOUBLE PRECISION(A-H, O-Z)
      DOUBLE PRECISION YY(NUU)
      COMMON /NUEQ/ NUU
CC
      ZERO=YY(1)-YY(2)
      RETURN
      END

*==> rlow.f <==
      FUNCTION RLOW(R)
      IMPLICIT DOUBLE PRECISION (A-H, O-Z)
CC
      IF(R.LT.0.D0)THEN
        WRITE(96,'(A)')'PROBLEM WITH FUNCTION RLOW'
        STOP
      ENDIF
      RLOW=-0.7392088D0+R*(-11.5315D0+0.382497D0*DLOG(R))+
     #R**2.D0*(5.31338D0-3.055D0*DLOG(R)+
     #0.523039D0*(DLOG(R))**2.D0)
        RETURN
        END

*==> s.f <==
      FUNCTION S(X,Y,Q)
      IMPLICIT DOUBLE PRECISION (A-H, O-Z)
CC
      IF(X.LT.0.D0 .OR. Y.LT.0.D0)THEN
        WRITE(96,'(A)')'PROBLEM WITH FUNCTION S'
        STOP
      ENDIF
      S=2.D0*(X*(DLOG(X/Q)-1.D0)-Y*(DLOG(Y/Q)-1.D0))/(X-Y)
      RETURN
      END

*==> pro.f <==
      FUNCTION PRO(Z)
      IMPLICIT DOUBLE PRECISION (A-H, O-Z)
      IF(Z.GE.0.D0) THEN
        PRO=1.D0
      ELSE
        PRO=-1.D0
      ENDIF
      RETURN
      END
```