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PROGRAM kadai4_2
  IMPLICIT NONE
  DOUBLE PRECISION :: x1, x2, a, er, er0 = 1.0d-6
  INTEGER :: K, KM = 100

  READ *, a
  IF (a <= 0.0d0) THEN
    STOP 'a <= 0.0d0'
  END IF

  x1 = a
  DO K = 1, KM
    x2 = x1 - 0.5d0 * (x1 ** 2 - a) / x1
    er = ABS(x2 - x1)
    IF (er < er0) THEN
      EXIT
    END IF
    x1 = x2
  END DO
  PRINT *, "k = ", x2, K, er
END PROGRAM kadai4_2

```