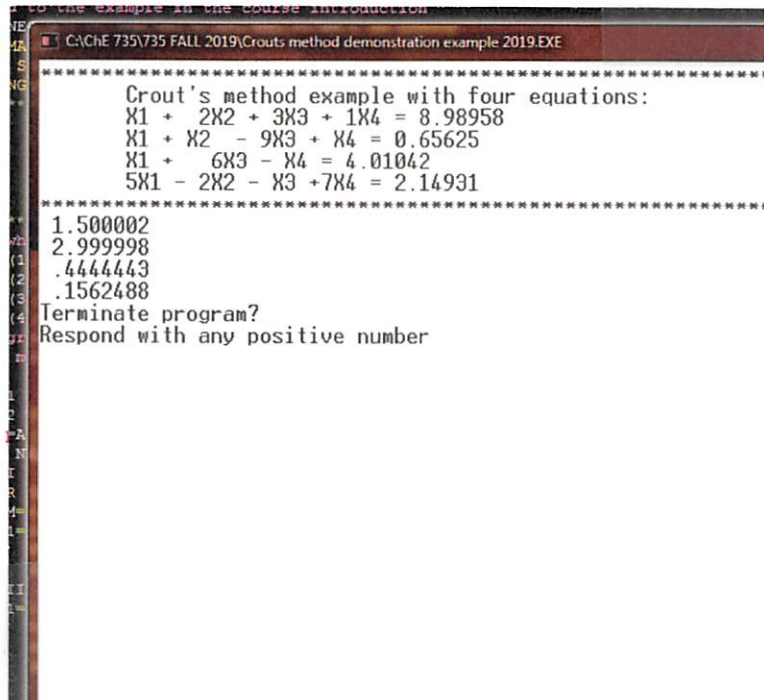


Crouts method demonstration example 2019.bas - 2,508 bytes, modified: 7/31/2019 9:30

```
#COMPILE EXE
#DIM ALL
REM *** Crout's method for solution of simultaneous algebraic equations
REM *** applied to the example in the course introduction
GLOBAL M, NEQ, J, I, II, SUM, JM1, K, IP1, IM1, JJ, NN, L AS SINGLE
FUNCTION PBMAIN
DIM A(10,11) AS SINGLE
DIM X(10) AS SINGLE
PRINT "*****"
PRINT "      Crout's method example with four equations:      "
PRINT "      X1 + 2X2 + 3X3 + 1X4 = 8.98958"
PRINT "      X1 + X2 - 9X3 + X4 = 0.65625"
PRINT "      X1 + 6X3 - X4 = 4.01042"
PRINT "      5X1 - 2X2 - X3 +7X4 = 2.14931"
PRINT "*****"
REM *** Here's where you must input the coefficient matrix.
A(1,1)=1:A(1,2)=2:A(1,3)=3:A(1,4)=1:A(1,5)=8.98958
A(2,1)=1:A(2,2)=1:A(2,3)=-9:A(2,4)=1:A(2,5)=0.65625
A(3,1)=1:A(3,2)=0:A(3,3)=6:A(3,4)=-1:A(3,5)=4.01042
A(4,1)=5:A(4,2)=-2:A(4,3)=-1:A(4,4)=7:A(4,5)=2.14931
REM *** The program yields: 1.50002, 2.999998, 0.4444443, and 0.1562488
REM *** Crout's method of matrix decomposition, NEQ=4 for this example
NEQ=4
M=NEQ+1
FOR J=2 TO M
A(1,J)=A(1,J)/A(1,1):NEXT J
FOR I=2 TO NEQ
J=I
FOR II=J TO NEQ
SUM=0!
JM1=J-1
FOR K=1 TO JM1
SUM=SUM+A(II,K)*A(K,J):NEXT K
A(II,J)=A(II,J)-SUM:NEXT II
IP1=I+1
FOR JJ=IP1 TO M
SUM=0!
IM1=I-1
FOR K=1 TO IM1
SUM=SUM+A(I,K)*A(K,JJ):NEXT K
A(I,JJ)=(A(I,JJ)-SUM)/A(I,I):NEXT JJ
NEXT I
X(NEQ)=A(NEQ,NEQ+1)
L=NEQ-1
FOR NN=1 TO L
SUM=0!
I=NEQ-NN
IP1=I+1
FOR J=IP1 TO NEQ
SUM=SUM+A(I,J)*X(J)
NEXT J
X(I)=A(I,M)-SUM:NEXT NN
FOR J=1 TO NEQ
PRINT X(J)
NEXT J
PRINT "Terminate program?"
INPUT "Respond with any positive
IF NN>0 THEN 300
300 REM *** continue
```



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END FUNCTION