QUADFORM

This program will help you approximate solutions of the equation $Ax^2 + Bx + C = 0$ using the quadratic formula. You should enter the AAAOWNER program first, to familiarize yourself with the format of these instructions. These instructions are for the TI-83, TI-83 Plus, and TI-84 Plus calculators.

Make sure your calculator is $\boxed{\text{ON}}$.

Here we go!

$\boxed{\text{PRGM}}$; select "NEW" and type the name of the program: *QUADFORM* $\boxed{\text{ENTER}}$.
$\boxed{\text{PRGM}}$; highlight "I/O" and then select "ClrHome" $\boxed{\text{ENTER}}$.
$\boxed{\text{PRGM}}$; highlight "I/O" and then select "Prompt"; $\boxed{\text{Alpha}}$ $\boxed{\text{A}}$ $\boxed{\text{ENTER}}$.
$\boxed{\text{PRGM}}$; highlight "I/O" and then select "Prompt"; $\boxed{\text{Alpha}}$ $\boxed{\text{B}}$ $\boxed{\text{ENTER}}$.
$\boxed{\text{PRGM}}$; highlight "I/O" and then select "Prompt"; $\boxed{\text{Alpha}}$ $\boxed{\text{C}}$ $\boxed{\text{ENTER}}$.
$\boxed{\text{Alpha}}$ $\boxed{\text{B}}$ $\boxed{x^2}$ $\boxed{-}$ (subtraction button) $\boxed{4}$ $\boxed{\text{Alpha}}$ $\boxed{\text{A}}$ $\boxed{\text{Alpha}}$ $\boxed{\text{C}}$ $\boxed{\text{STO}\triangleright}$ $\boxed{\text{Alpha}}$ $\boxed{\text{D}}$ $\boxed{\text{ENTER}}$.

$\boxed{\text{PRGM}}$; highlight "CTL" and then select "IF"; $\boxed{\text{Alpha}}$ $\boxed{\text{D}}$ $\boxed{\text{2nd}}$ $\boxed{\text{TEST}}$;
      highlight "TEST" and then select "<"; $\boxed{0}$ (zero) $\boxed{\text{ENTER}}$.
$\boxed{\text{PRGM}}$; hightlight "CTL"; and then select "THEN" $\boxed{\text{ENTER}}$.
$\boxed{\text{PRGM}}$; highlight "I/O" and then select "Disp"; $\boxed{\text{2nd}}$ $\boxed{\text{Alpha}}$ $\boxed{"}$ *NO ROOTS* $\boxed{"}$ $\boxed{\text{ENTER}}$.
$\boxed{\text{PRGM}}$; highlight "CTL" and then select "Else"; $\boxed{\text{ENTER}}$.
$\boxed{(}$ $\boxed{-}$ (negative) $\boxed{\text{Alpha}}$ $\boxed{\text{B}}$ $\boxed{+}$ $\boxed{\text{2nd}}$ $\boxed{\sqrt{}}$ $\boxed{\text{Alpha}}$ $\boxed{\text{D}}$ $\boxed{)}$ $\boxed{)}$ $\boxed{\div}$ $\boxed{(}$ $\boxed{2}$ $\boxed{\text{Alpha}}$ $\boxed{\text{A}}$ $\boxed{)}$ $\boxed{\text{STO}\triangleright}$ $\boxed{\text{Alpha}}$ $\boxed{\text{R}}$ $\boxed{\text{ENTER}}$.
      Make sure you have the right number of parentheses on this line!
$\boxed{(}$ $\boxed{-}$ (negative) $\boxed{\text{Alpha}}$ $\boxed{\text{B}}$ $\boxed{-}$ (subtraction) $\boxed{\text{2nd}}$ $\boxed{\sqrt{}}$ $\boxed{\text{Alpha}}$ $\boxed{\text{D}}$ $\boxed{)}$ $\boxed{)}$ $\boxed{\div}$ $\boxed{(}$ $\boxed{2}$ $\boxed{\text{Alpha}}$ $\boxed{\text{A}}$ $\boxed{)}$ $\boxed{\text{STO}\triangleright}$
      $\boxed{\text{Alpha}}$ $\boxed{\text{S}}$ $\boxed{\text{ENTER}}$. Again, check parentheses!
$\boxed{\text{PRGM}}$; highlight "I/O" and then select "Disp"; $\boxed{\text{Alpha}}$ $\boxed{\text{R}}$ $\boxed{\text{ENTER}}$.
$\boxed{\text{PRGM}}$; highlight "I/O" and then select "Disp"; $\boxed{\text{Alpha}}$ $\boxed{\text{S}}$ $\boxed{\text{ENTER}}$.
$\boxed{\text{PRGM}}$; highlight "CTL" and then select "End"; $\boxed{\text{ENTER}}$.
$\boxed{\text{2nd}}$ $\boxed{\text{QUIT}}$.

Check that you've entered the program correctly: Press $\boxed{\text{PRGM}}$, move the cursor to "Edit", and select "QUADFORM." Turn this sheet over to see how the program should look in your calculator. ***Make sure your program has the proper format before bringing any "error" messages to your instructor.***

Now run your program. If you try to find the roots of $3x^2 + x + 8$, the program should return "NO ROOTS." The roots of $2x^2 + x - 3$ are -1.5 and 1.

See your instructor if you have any questions.

The body of the program should look like this:

```
:ClrHome
:Prompt A
:Prompt B
:Prompt C
:B²-4AC→D
:If D<0
:Then
:Disp "NO ROOTS"

:Else
:(-B+√(D))/(2A)→
R
:(-B-√(D))/(2A)→
S
:Disp R
:Disp S
:End
```