

## A program to simplify radicals for your TI-83/TI-84

### Notes

1. Press **ENTER** after each line.
2. The **Prompt** command is accessed from the **I/O** menu (hit **PRGM** first to access the **I/O** menu).
3. The  $\rightarrow$  key is the 'store' function. You will need to press the **STO** $\rightarrow$  key to the left of the **1** key.
4. The  $\leq$  and the  $=$  symbol can be accessed from the **TEST** menu, which can be accessed by typing **2<sup>nd</sup> MATH**.
5. The **If** command, the **Then** command, the **Else** command and the **End** command can be accessed from the **CTL** menu (hit **PRGM** first to access the **CTL** menu).
6. The **gcd** function calculates the greatest common divisor. It can be accessed from the **CATALOG** by typing **2<sup>nd</sup> 0**. You can quickly locate any function by pressing the alpha key associated with the first letter of the function, just like scrolling through a phonebook on a cell phone.
7. Press **2<sup>nd</sup> QUIT** to exit the program editing mode once you're done.

Here's what the finished program should look like:

```
PROGRAM:RAD
:Prompt R
:2 $\rightarrow$ D
:1 $\rightarrow$ C
:While D2 $\leq$ R
:If gcd(R, D2)=D2
:Then
:CD $\rightarrow$ C
:R/D2 $\rightarrow$ R
:Else
:D+1 $\rightarrow$ D
:End
:End
:Disp C
:Disp "ROOT"
:Disp R
```

Test the program. Use the program to simplify some radicals and check that the program gives the correct answer.

e.g.  $\sqrt{20} = 2\sqrt{5}$ ,  $\sqrt{98} = 7\sqrt{2}$ ,  $\sqrt{2400} = 20\sqrt{6}$ , etc.