

NOTE – To receive credit for your work you must follow these instructions:

- A. You can complete one or both of the extra credit problems, you don't have to them both.
  - B. If you want your work to be graded you must send the instructor an email stating that you have completed the extra credit.
  - C. The email must be sent by the due date.
  - D. The email must include your username on the CBC Linux server.
  - E. The scripts you create must be located in your home directory and use the required names. The instructor will not search your files to find the scripts.
1. [10 points] The following script will read a username, and if the user exists print out some of the information in the password file for that user. Currently it prints the username, password, and uid fields; each on a separate line. Modify the program so that it also prints the remaining fields from the password file, each on it's own line and with the appropriate label.

Save the script in your home directory with the name **userinfo.sh**

Here are some hints to help you:

- The command that breaks apart the line from the password file is `cut`. The `-d` option tells it what delimiter to use when breaking apart lines. The `-f` option tells it what fields to print to stdout.
- The fields in the password file are: username, password, user id (uid) group id (gid), GCOS or finger information, home directory, and default shell.
- A copy of this program is available on the Linux server `/home/user.sh`

```
#!/bin/sh
#set -xv

echo -n "Enter a name: "
read uname

while [ $uname != "q" -a $uname != "Q" ]
do

    tmp=`grep ^$uname /etc/passwd `
    tmp2=`echo $tmp | sed 's/.*$/ '`
    if [ ${tmp2:-"NULL"} != "NULL" ]
    then
        echo -e "complete password file entry for $uname \n$tmp"
        echo -e "username: \t $uname"
        pswd=`echo $tmp | cut -d: -f2 `
        echo -e "password: \t $pswd"
        puid=`echo $tmp | cut -d: -f3 `
        echo -e "uid: \t $puid"

    else
        echo "No user with name $uname found in /etc/passwd"
    fi

    echo -n "Enter a name: [q when done]"
    read uname

done
```

2. [10 pts] Write a shell script that given a radius, calculates the circumference of a circle and area of a sphere with that radius. (Hint – don't write this from scratch. Find another script that reads user input and performs a calculation, then modify it to meet your needs.) Save the script in your home directory with the name **circle.sh**

The formula for calculating the area is:

$$\text{Area} = \pi * \text{Radius}^2$$

You can use 3.14 for  $\pi$ , and either do  $\text{Radius} * \text{Radius}$  or  $\text{Radius}^2$  to get the square of the radius.

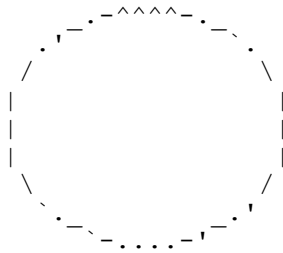
The formula for calculating the sphere's volume is:

$$\text{Volume} = \frac{4}{3} \pi * \text{Radius}^3$$

Use the `scale` command to limit the number of decimal points for the area and the volume, but do at least two places after the decimal.

You can assume that the user will enter numbers, so you don't have to do any error checking of the input.

Your program should allow the user to enter the value for the radius, perform the calculation(s), and then print the output. The output should be a circle that is labeled appropriately.



```
Radius: XXXX  
Area: XXXX  
Volume: XXXX
```