

Subcontractors – bc

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bc – math help for the shell

- interactive or programatic
- can accept its commands from stdin
- can accept an entire bc program's worth

bc – math help for shell

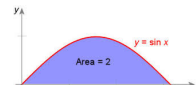
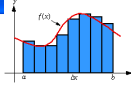
```
[root@frausto:~/class/shellprogramming/awk]# cat integrate-in-bc
#!/bin/bash
#
# adaptation, to be shell-callable, of bc code from
# see http://en.wikibooks.org/wiki/Guide_to_Unix/Explanations/bc
#
# implements Simpson's rule for integration.
# the function "integrate" approximates the definite integral from $1 to $2 using $3 parabola sections

echo -e "\nWelcome to the shell script!"
echo "Let's visit bc for consultation; what's the area under a sine wave (from $1 to $2)?"
VAR=$(
cat <<EOF | bc -l
)
EOF
)

echo "Welcome back to the shell script!"
echo -e "bc said the answer is: $VAR\n"

[.root@frausto awk]# ./integrate-in-bc 0 3.14159 100

Welcome to the shell script
Let's visit bc for consultation; what's the area under a sine wave (from 0 to 3.14159)?
bc said the answer is: 2.00000000067294883480
[.root@frausto awk]#
```



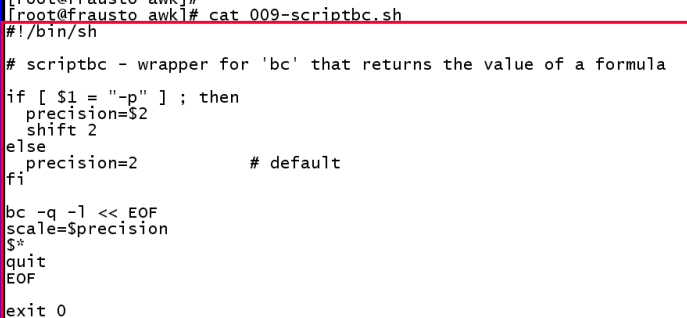
bc code, not bash shell code

correct!

background:
<http://jeremykun.com/tag/simpsons-rule>
<http://www.zweigmedia.com/RealWorld/integral/integral.html>

bc – interactive math help for shell

```
[root@frausto:~/class/shellprogramming/awk]#
[.root@frausto awk]# cat 009-scriptbc.sh
#!/bin/sh
# scriptbc - wrapper for 'bc' that returns the value of a formula
if [ $1 = "-p" ] ; then
    precision=$2
    shift 2
else
    precision=2          # default
fi
bc -q -l << EOF
scale=$precision
$*
quit
EOF
exit 0
[.root@frausto awk]#
[.root@frausto awk]# ./009-scriptbc.sh 83/17
4.88
[.root@frausto awk]#
[.root@frausto awk]# ./009-scriptbc.sh -p 10 83/17
4.8823529411
[.root@frausto awk]#
[.root@frausto awk]# ./009-scriptbc.sh -p 10 's(3.14159/2)'
.9999999999
[.root@frausto awk]#
[.root@frausto awk]# ./009-scriptbc.sh -p 10 'c(0)'
1.0000000000
[.root@frausto awk]#
```



Wicked Cool Shell Scripts, Dave Taylor, p29