

112103034  
NACHIKET SUNIL DESHMUKH

**DTL BASH SCRIPTING**

```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ echo echo hello world! >hello.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ chmod 755 hello.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ ls
first  first.sh  ginfo  happy.sh  hello.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ $BASH hello.sh
hello world!
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ ./hello
bash: ./hello: No such file or directory
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ ./hello.sh
hello world!
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$
```

1

```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ cat <<ALLDONE> hello_multiline.sh
> echo Hello World!!
> echo How are you doing ?
> echo Linux is interesting
> ALLDONE
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ chmod 755 hello_multiline.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ ls
first  first.sh  ginfo  happy.sh  hello_multiline.sh  hello.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ $BASH hello_multiline.sh
Hello World!!
How are you doing ?
Linux is interesting
```

2

```
nachiket@Nachiket-HP: ~/Desktop/DTL_bash_shell/dtl
GNU nano 6.2 hello.sh
#!/bin/bash
#This is my helloworld bash script
echo "Hello World!"
```

3

```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ mkdir dtl
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell$ cd dtl
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ touch hello.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ nano hello.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ chmod +x hello.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ ls
hello.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ ./hello.sh
Hello World!
```

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```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ #!/bin/bash
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ touch hello.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ nano hello.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ chmod +x hello.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ ./hello.sh
#!/bin/bash -xv
#This is my helloworld bash script
echo "Hello World!"
+ echo 'Hello World!'
Hello World!
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$
```

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```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ nano x.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ bash x.sh {A..Z}
DOGCAT
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$
```

6

```
GNU nano 6.2 xp.sh *
#!/bin/bash
echo
echo $* Represents all arguments as simple strings
echo
echo $@ All arguments are represented as an array
echo
echo $# is total number of arguments
echo
echo $- current option flag
echo
echo $$ is the PID of the shell
echo
echo $! is the PID of the last executed command
echo
echo $0 is the script name
echo
echo $__ final arg of last executed foreground command
echo
echo $? Represents the exit code of last command
echo

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line  M-E Redo
```

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```
Activities Terminal Feb 6 10:06 PM
nachiket@Nachiket-HP: ~/Desktop/DTL_bash_shell/dtl
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ nano x.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ touch xp.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ nano xp.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ bash xp.sh {A..Z}

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Represents all arguments as simple strings
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z All arguments are represented as an array
26 is total number of arguments
hB current option flag
12967 is the PID of the shell
is the PID of the last executed command
xp.sh is the script name
echo final arg of last executed foreground command
0 Represents the exit code of last command

nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$
```

8

```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo a{b,d,c}e
abe ade ace
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo {A..Z}
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ mkdir Z{1..10}
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ ls
hello.sh xp.sh x.sh z1 z10 z2 z3 z4 z5 z6 z7 z8 z9
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$
```

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```
nachiket@Nachiket-HP: ~/Desktop/DTL_bash_shell/dtl
GNU nano 6.2 test.sh
#!/bin/bash
name=monster
echo ${name}_silly
```

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```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $BASH
/usr/bin/bash
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ nano test.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ ./test.sh
bash: ./test.sh: Permission denied
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ chmod +x test.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ ./test.sh
monster_silly
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ nano test.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$
```

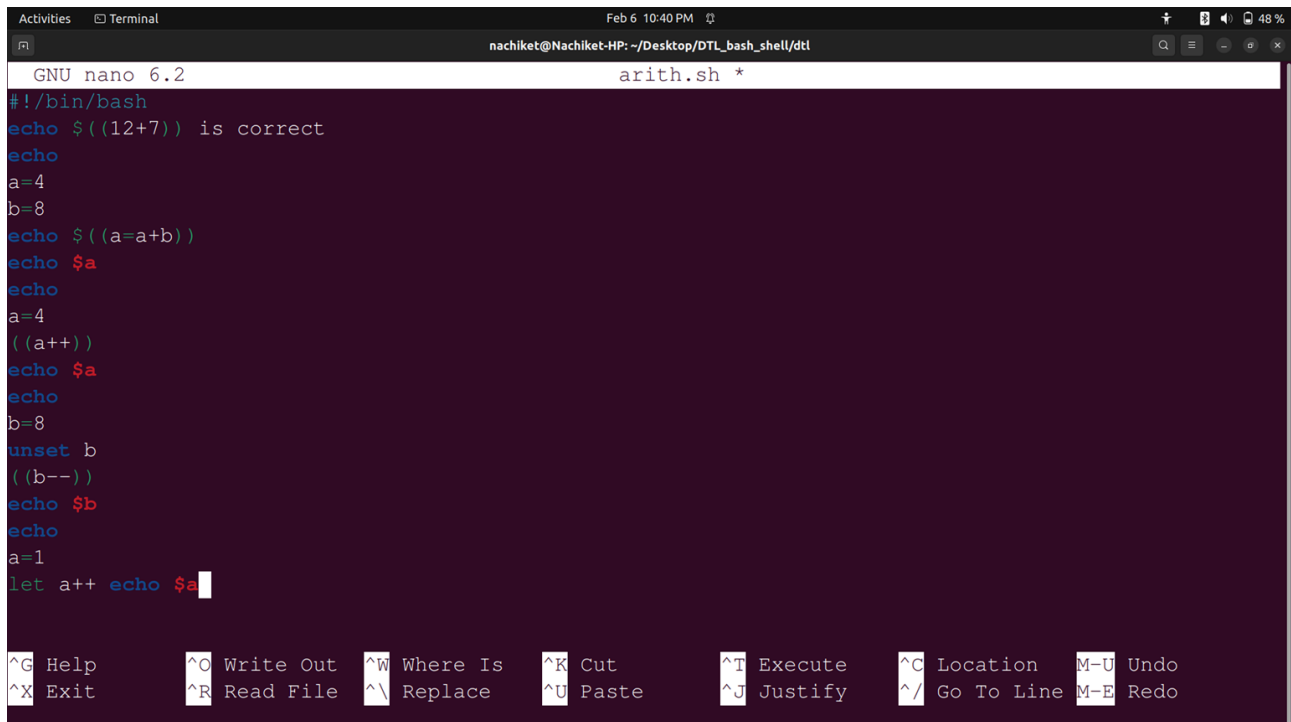
11

```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ nano test.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ nano test.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ ./test.sh
cookiemonster_is_silly
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$
```

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```
GNU nano 6.2 test.sh
#!/bin/bash
name=monster
var1=cookie
var3=_is_silly
echo ${var1}${name}${var3}
```

13



```
Activities Terminal Feb 6 10:40 PM 48 %
nachiket@Nachiket-HP: ~/Desktop/DTL_bash_shell/dt1
GNU nano 6.2 arith.sh *
#!/bin/bash
echo $((12+7)) is correct
echo
a=4
b=8
echo $((a+a+b))
echo $a
echo
a=4
((a++))
echo $a
echo
b=8
unset b
((b--))
echo $b
echo
a=1
let a++ echo $a
```

^G Help    ^O Write Out    ^W Where Is    ^K Cut    ^T Execute    ^C Location    M-U Undo  
 ^X Exit    ^R Read File    ^\ Replace    ^U Paste    ^J Justify    ^/ Go To Line    M-E Redo

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```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ nano arith.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ ./arith.sh
19 is correct

12
12

5

-1

2
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$
```

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```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ file test.sh
test.sh: Bourne-Again shell script, ASCII text executable

nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$
```

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```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ nano test1.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ chmod +x test1.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ ./test1.sh
Welcome back nachiket! Today is Monday, which is the best day of the week!
Your Bash shell version is: 5.1.16(1)-release. Enjoy!
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$
```

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```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ a=4
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ b=8
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $a
4
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $b
8
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo ${a+$b}
12
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$
```

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```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ nano test2.sh
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ ./test2.sh
tar: Removing leading `/' from member names
tar: Removing leading `/' from hard link targets
Backup of /home/nachiket completed! Details about the output backup file
-rw-rw-r-- 1 nachiket nachiket 2763566424 Feb  6 23:03 /tmp/nachiket_home_2023-02-06_230133.tar.gz
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ env
```

22

```
GNU nano 6.2 test3.sh *
#!/bin/bash
array={a,b,c}
for chr in ${array[@]}
do echo $chr
done
```

23



```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ b=34
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $a
4
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ array={a,b,c}
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo ${array[*]}
{a,b,c}
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo ${array[*]}
{a,b,c}
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$
```

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```
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ status
Monday 06 February 2023 11:25:23 PM IST
 23:25:23 up 4:31, 1 user, load average: 0.55, 0.36, 0.34
nachiket tty2 2023-02-06 18:54 (tty2)
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$
```

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```
Activities Terminal Feb 6 11:29 PM
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl
[23: command not found
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ [ $a -lt $b ]
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $
$
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ [ $a -lt $b ]
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $?
0
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ [ $a -gt $b ]
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $?
1
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ [ $a -ne $b ]
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $?
0
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ ["mango" = "orange"]
[mango: command not found
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ [ "mango" = "orange" ]
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $?
1
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ str="mango"
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ str="orange"
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ [ $str1 = $str2 ]
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $?
0
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$
```

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```

nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ str="mango"
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ str="orange"
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ [ $str1 = $str2 ]
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $?
0
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ str="mamgo"
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ str2="orange"
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ [ $str = $str2 ]
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $?
1
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$

```

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```

nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ if ((a==4)) ; then echo yes ; else echo no ; fi
no
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ a=4
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ if ((a==4)) ; then echo yes ; else echo no ; fi
yes
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$

```

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```

nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ if ((a==4)) ; then echo yes ; else echo no ; fi
no
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ a=4
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ if ((a==4)) ; then echo yes ; else echo no ; fi
yes
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ if ((a<4)) ; then echo yes ; else echo no ; fi
no
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ if ((a>4)) ; then echo yes ; else echo no ; fi
no
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$

```

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```

nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ if ((a==4)) ; then echo yes ; else echo no ; fi
no
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ a=4
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ if ((a==4)) ; then echo yes ; else echo no ; fi
yes
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ if ((a<4)) ; then echo yes ; else echo no ; fi
no
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ if ((a>4)) ; then echo yes ; else echo no ; fi
no
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$

```

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```

nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ a=$(( 12 + 5 ))
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $a
17
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $(( 12 + 5 ))
17
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $(( 100 - 1 ))
99
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $(( 3 * 11 ))
33
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ division=$(( 100 / 10 ))
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $division
10
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ x=10;y=33
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ z=$(( $x * $y ))
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $z
330
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$

```

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```

Activities Terminal Feb 6 11:38 PM
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ expr 2 + 2
4
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ expr 6 * 6 expr:
expr: syntax error: unexpected argument `arith.sh'
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ expr 6 \* 6
36
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ expr 6 / 3
2
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ expr 1000 - 999
1
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ let a=2+2
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $a
4
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ let b=4*($a-1)
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $b
12
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ let c=($b**3)/2
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $c
864
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ let c++
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ echo $c
865
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ let c-
bash: let: c-: syntax error: invalid arithmetic operator (error token is "-")
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dt1$ let c--

```

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```
Activities Terminal Feb 6 11:40 PM
nachiket@Nachiket-HP: ~/Desktop/DTL_bash_shell/dtl
4
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ let b=4*($a-1)
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $b
12
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ let c=($b**3)/2
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $c
864
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ let c++
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $c
865
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ let c-
bash: let: c-: syntax error: invalid arithmetic operator (error token is "-")
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ let c--
bash: let: c--: syntax error: invalid arithmetic operator (error token is "--")
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo '8.5 / 2.3' | bc
3
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo 'scale=2;8.5 / 2.3' | bc
3.69
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo 'scale=30;8.5 / 2.3' | bc
3.695652173913043478260869565217
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ squareroot=$( echo 'scale=50;sqrt(50)' | bc )
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$ echo $squareroot
7.07106781186547524400844362104849039284835937688474
nachiket@Nachiket-HP:~/Desktop/DTL_bash_shell/dtl$
```