

```
satvik@computer:~/src/github.com/sahasatvik/Calculator/bin$ java Calculator
```

Calculator by Satvik Saha

An up-to-date version of Calculator can be found at :
<https://github.com/sahasatvik/Calculator>

Type /help to read a guide on how to use this program.

```
?> /help cmds
```

```
$> Commands
```

```
.....
```

'Calculator' interprets expressions starting with '/' as
'commands'. These are special expressions which are not parsed as
mathematical expressions, but as instructions to the 'Calculator'.

Enter '/list' for a complete list of valid commands.

```
?> /list cmds
```

```
$> Commands :
```

/help	>	general help
/help vars	>	help on Variables
/help funcs	>	help on Functions
/help cmds	>	help on Commands
/list vars	>	list variables
/list funcs	>	list functions
/list cmds or /list	>	list commands
/exit	>	exit Calculator

```
?> 
```

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```
?> 1 +
```

```
!> Missing operand to + !
```

```
?> 1 + ( 2 + 3 ) - ( 4 + ( 5 * 6)
```

```
!> Unmatched brackets in expression !
```

```
1 + 5.0 - ( 4 + ( 5 * 6 )
      ^
```

```
?> x = 10
```

```
=> 10.0
```

```
?> <x> + <y>
```

```
!> Variable <y> not found !
```

Try /list vars for a complete list of available variables.

```
?> sin[<pi>] + cis[<pi>]
```

```
!> Function cis[] not found !
```

Try /list funcs for a complete list of available functions.

```
?> sin[ ]
```

```
!> Missing operand to sin[] !
```

```
?>
```

```
!> Null Expression !
```

```
?> 
```

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```
?> abs[5 - 10]
=> 5.0
?> fct[4]
=> 24.0
?> 5!
=> 120.0
?> x = rad[ 30 ]
=> 0.5235987755982988
?> sin[<x>]^2 + cos[<x>]^2
=> 1.0
?> y = rad[ 60 ]
=> 1.0471975511965976
?> 1 - (sin[<y>] ^ 2)
=> 0.25000000000000001
?> deg[ <pi> ]
=> 180.0
?> 
```

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?> /help funcs

\$> Functions

.....
'Calculator' supports the use of some basic functions.
They can be used with the following syntax :
fnc[value] > evaluate 'fnc' of 'value'

Following are some valid uses of functions :

sin[<pi> / 2]	=>	1.0
1 + abs[2 - 3]	=>	2.0
log[<e> ^ 3]	=>	3.0

Enter '/list funcs' for a list of valid functions.

?> /list funcs

\$ Functions :

abs[x]	>	absolute value of <x>
exp[x]	>	exponent of <x> (<e> ^ <x>)
log[x]	>	logarithm of <x> (base <e>)
fct[x] or x!	>	factorial of <x>
deg[x]	>	convert <x> to degrees from radians
rad[x]	>	convert <x> to radians from degrees

sin[x]		trigonometric functions (<x> in radians)
cos[x]		
tan[x]	>	
csc[x]		
sec[x]		
ctn[x]		

?> sin[<pi> / 2]

=> 1.0

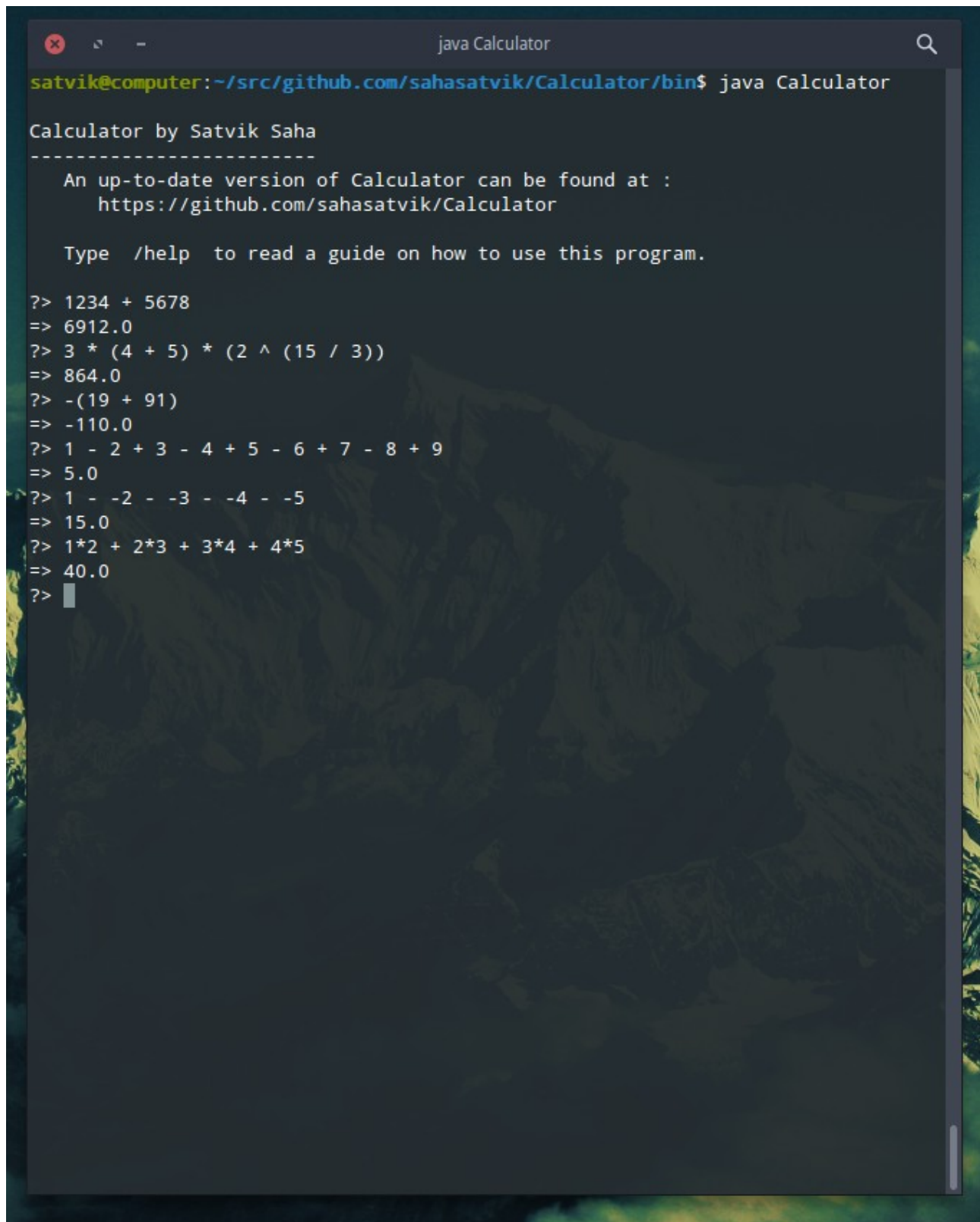
?> 6!

=> 720.0

?> sin[rad[30]] ^ 2 + cos[rad[30]] ^ 2

=> 1.0

?> █



The image shows a terminal window titled "java Calculator". The prompt is "satvik@computer:~/src/github.com/sahasatvik/Calculator/bin\$". The user has entered "java Calculator". The program output is as follows:

```
Calculator by Satvik Saha
-----
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Type /help to read a guide on how to use this program.

?> 1234 + 5678
=> 6912.0
?> 3 * (4 + 5) * (2 ^ (15 / 3))
=> 864.0
?> -(19 + 91)
=> -110.0
?> 1 - 2 + 3 - 4 + 5 - 6 + 7 - 8 + 9
=> 5.0
?> 1 - -2 - -3 - -4 - -5
=> 15.0
?> 1*2 + 2*3 + 3*4 + 4*5
=> 40.0
?> 
```

```
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```
?> a = 3
=> 3.0
?> b = 4
=> 4.0
?> c = ( <a> ^ 2 + <b> ^ 2 ) ^ 0.5
=> 5.0
?> f = 1 * 2 * 3 * 4 * 5
=> 120.0
?> <ans> * 6
=> 720.0
?> r = 10
=> 10.0
?> area = <pi> * <r> ^ 2
=> 314.1592653589793
?> circumference = 2 * <pi> * <r>
=> 62.83185307179586
?> <area> / <circumference>
=> 5.0
?> /list vars
$> Variables :
```

e	=	2.718281828459045
pi	=	3.141592653589793
phi	=	1.618033988749895
a	=	3.0
b	=	4.0
c	=	5.0
f	=	120.0
r	=	10.0
area	=	314.1592653589793
circumference	=	62.83185307179586
ans	=	5.0

```
?> █
```

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?> /help vars

\$> Variables

.....

'Calculator' can also store user-defined variables.
The syntax for assigning and using variables is as follows :
var = value > assign 'value' to 'var'
<var> > <var> will be replaced
its value.

Following are some valid uses of variables :

x = 3	=>	3.0
y = <x> + 1	=>	4.0
(<x>^2 + <y>^2)^0.5	=>	5.0

Nesting of assignments is also supported, as follows :

x = 1 + (y = 1)	=>	2.0
<x>	=>	2.0
<y>	=>	1.0

A special variable <ans> stores the previous expression.
Thus, the following is valid :

1 * 2 * 3 * 4	=>	24.0
<ans> * 5	=>	120.0

Enter '/list vars' for a list of stored variables.

?> myVar = 1111 ^ 2

=> 1234321.0

?> /list vars

\$> Variables :

e	=	2.718281828459045
pi	=	3.141592653589793
phi	=	1.618033988749895
myVar	=	1234321.0
ans	=	1234321.0

?> █


```
java Calculator
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```

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Type /help to read a guide on how to use this program.

?> /help

\$> Calculator Helptext

~~~~~

Welcome to 'Calculator', a simple java application written to evaluate mathematical expressions.

This program displays a prompt (?>), after which you can enter a mathematical expression. 'Calculator' will display the result, or point out errors in the expression.

'Calculator' can evaluate simple arithmetic expressions, using the operators (+, -, \*, /, ^(power)), as well as parenthesis ('(', ')'). 'Calculator' follows the BODMAS rule.

Following are some valid expressions :

|                  |    |      |
|------------------|----|------|
| 1 + 1            | => | 2.0  |
| 1 * (2 + 3)      | => | 5.0  |
| 10 * (64 ^ -0.5) | => | 1.25 |

For help on more advanced topics, try entering the following :

|             |   |                   |
|-------------|---|-------------------|
| /help vars  | > | help on Variables |
| /help funcs | > | help on Functions |
| /help cmds  | > | help on Commands  |

Enter '/list' for a complete list of valid commands.

?> /list

\$> Commands :

|                     |   |                   |
|---------------------|---|-------------------|
| /help               | > | general help      |
| /help vars          | > | help on Variables |
| /help funcs         | > | help on Functions |
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| /list vars          | > | list variables    |
| /list funcs         | > | list functions    |
| /list cmds or /list | > | list commands     |
| /exit               | > | exit Calculator   |

?> █