# Polynomials

## poly

The *poly* tool returns the coefficients of a polynomial with the given sequence of roots.

```
print numpy.poly([-1, 1, 1, 10])      #Output : [  1 -11   9  11 -10]
```

## roots

The *roots* tool returns the roots of a polynomial with the given coefficients.

```
print numpy.roots([1, 0, -1])         #Output : [-1.  1.]
```

## polyint

The *polyint* tool returns an antiderivative (indefinite integral) of a polynomial.

```
print numpy.polyint([1, 1, 1])        #Output : [ 0.33333333  0.5       1.        0.       ]
```

## polyder

The *polyder* tool returns the derivative of the specified order of a polynomial.

```
print numpy.polyder([1, 1, 1, 1])     #Output : [3 2 1]
```

## polyval

The *polyval* tool evaluates the polynomial at specific value.

```
print numpy.polyval([1, -2, 0, 2], 4)   #Output : 34
```

## polyfit

The *polyfit* tool fits a polynomial of a specified order to a set of data using a least-squares approach.

```
print numpy.polyfit([0,1,-1, 2, -2], [0,1,1, 4, 4], 2)
#Output : [  1.00000000e+00   0.00000000e+00  -3.97205465e-16]
```

The functions polyadd, polysub, polymul, and polydiv also handle proper addition, subtraction, multiplication, and division of polynomial coefficients, respectively.

### Task

You are given the coefficients of a polynomial $P$.

Your task is to find the value of $P$ at point $x$.

**Input Format**

The first line contains the space separated value of the coefficients in $P$.
The second line contains the value of $x$.

**Output Format**

Print the desired value.

**Sample Input**

```
1.1 2 3
0
```

**Sample Output**

```
3.0
```