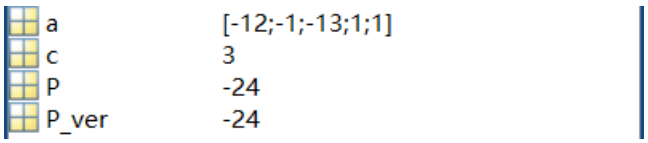
14.

```
%Horner.m
function [P] = Horner(a, c)
b = zeros(size(a));
b(size(a)) = a(size(a));
for i = size(a, 1) - 1:-1:1
    b(i) = b(i + 1) * c + a(i);
end
P = b(1);
end
```

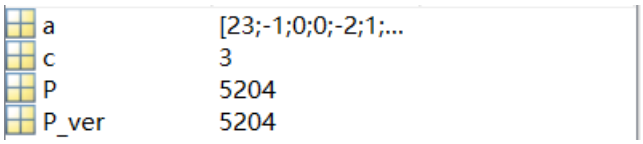
(a)

```
%a14.m
a = [-12; -1; -13; 1; 1];
c = 3;
[P] = Horner(a, c);
P_ver = [1, c, c^2, c^3, c^4] * a;
```



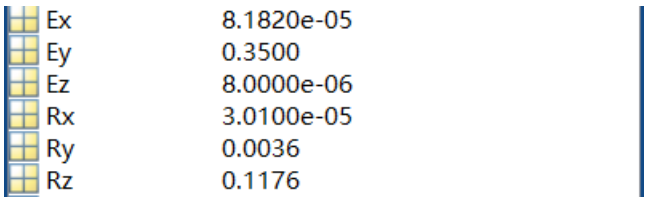
(b)

```
%b14.m
a = [23; -1; 0; 0; -2; 1; 1; 2];
c = 3;
[P] = Horner(a, c);
P_ver = [1, c, c^2, c^3, c^4, c^5, c^6, c^7] * a;
```



1.

```
%abc1.m
temp = [2.71828182; 98.350; 0.000068];
temp_a = [2.7182; 98.000; 0.00006];
E = abs(temp - temp_a);
R = E ./ abs(temp);
Ex = E(1);
Rx = R(1);
Ey = E(2);
Ry = R(2);
Ez = E(3);
Rz = R(3);
```



3.

$$\frac{|p-\hat{p}|}{|p|} < \frac{10^{1-d}}{2}$$

$$p - \frac{10^{1-d}}{2} \times |p| < \hat{p} < p + \frac{10^{1-d}}{2} \times |p|$$

(a) $p_1 + p_2 = 1.50525$

$1.504497375 < \widehat{p_1 + p_2} < 1.506002625$

取$\widehat{p_1 + p_2} = 1.505$

$p_1 \times p_2 = 0.1290275$

$0.12896298625 < \widehat{p_1 \times p_2} < 0.12909201375$

取$\widehat{p_1 \times p_2} = 0.129$

(b) $p_1 + p_2 = 31.442182$

$31.4406098909 < \widehat{p_1 + p_2} < 31.4437541091$

取$\widehat{p_1 + p_2} = 31.442$

$p_1 \times p_2 = 0.85392253$

$0.8538798338735 < \widehat{p_1 \times p_2} < 0.8539652261265$

取$\widehat{p_1 \times p_2} = 0.8539$

9. $\frac{1}{1-h} + \cos(h) = 2 + h + \frac{h^2}{2} + h^3 + \frac{h^4}{4!} + O(h^4)$

$\frac{1}{1-h} \times \cos(h) = 1 + h + \frac{h^2}{2} + \frac{h^3}{2} - \frac{11h^4}{24} - \frac{11h^5}{2} + \frac{h^6}{4!} + \frac{h^7}{4!} + O(h^4)$