

So luong he truc toa do: 4

n =

4

He truc so Chuyen vi cua he truc, 0/1 (0:Tinh tien, 1:Quay)1

C =

1 0 1 0 0 1 1 0

Quay quanh tuc nao x/y/z: z

Q =

z

Gia tri quay quanh truc: t1

t =

t1

T =

```
[ cos(t1), -sin(t1), 0, 0]
[ sin(t1),  cos(t1), 0, 0]
[      0,      0, 1, 0]
[      0,      0, 0, 1]
```

He truc so Chuyen vi cua he truc, 0/1 (0:Tinh tien, 1:Quay)0

C =

1 0 1 0 0 1 1 0

Dich chuyen theo truc x : 12

dx =

12

Dich chuyen theo truc y : 0

dy =

0

Dich chuyen theo truc z : l1+l3

dz =

l1 + l3

T =

```
[ cos(t1), -sin(t1), 0, l2*cos(t1)]
[ sin(t1),  cos(t1), 0, l2*sin(t1)]
[      0,      0, 1,   l1 + l3]
[      0,      0, 0,      1]
```

He truc so Chuyen vi cua he truc, 0/1 (0:Tinh tien, 1:Quay)1

C =

```
1      0      1      0      0      1      1      0
```

Quay quanh tuc nao x/y/z: z

Q =

z

Gia tri quay quanh truc: t2

t =

t2

T =

```
[ cos(t1)*cos(t2) - sin(t1)*sin(t2), - cos(t1)*sin(t2) - cos(t2)*sin(t1), 0, l2*cos
(t1)]
[ cos(t1)*sin(t2) + cos(t2)*sin(t1),  cos(t1)*cos(t2) - sin(t1)*sin(t2), 0, l2*sin
(t1)]
[      0,      0, 1,   l1 + l3]
[      0,      0, 0,      1]
```

He truc so Chuyen vi cua he truc, 0/1 (0:Tinh tien, 1:Quay)0

C =

```
1      0      1      0      0      1      1      0
```

```
Dich chuyen theo truc x : 14
```

```
dx =
```

```
14
```

```
Dich chuyen theo truc y : 0
```

```
dy =
```

```
0
```

```
Dich chuyen theo truc z : -15
```

```
dz =
```

```
-15
```

```
T =
```

```
[ cos(t1)*cos(t2) - sin(t1)*sin(t2), - cos(t1)*sin(t2) - cos(t2)*sin(t1), 0, 14*(cos
(t1)*cos(t2) - sin(t1)*sin(t2)) + 12*cos(t1)]
[ cos(t1)*sin(t2) + cos(t2)*sin(t1),  cos(t1)*cos(t2) - sin(t1)*sin(t2), 0, 14*(cos
(t1)*sin(t2) + cos(t2)*sin(t1)) + 12*sin(t1)]
[
11 + 13 - 15]          0,          0, 14
[
1]          0,          0, 0
```

```
ans =
```

```
[ cos(t1 + t2), -sin(t1 + t2), 0, 14*cos(t1 + t2) + 12*cos(t1)]
[ sin(t1 + t2),  cos(t1 + t2), 0, 14*sin(t1 + t2) + 12*sin(t1)]
[
0,          0, 1,          11 + 13 - 15]
[
0,          0, 0,          1]
```

```
>>
```