
```
% HW_1 problem 5
clc;
clear all
close all
```

Compute the rotation given by the supplied product

```
% define some symbolic variables

syms theta phi psi

R = rotx(theta)*roty(phi)*rotz(psi)*roty(-phi)*rotx(-theta)

R =

[
    sin(phi)^2 + cos(phi)^2*cos(psi),
                                     - sin(theta)*(cos(phi)*sin(phi))
    - cos(phi)*cos(psi)*sin(phi)) - cos(phi)*cos(theta)*sin(psi),

    cos(theta)*(cos(phi)*sin(phi) - cos(phi)*cos(psi)*sin(phi)) -
    cos(phi)*sin(psi)*sin(theta)]
[ cos(phi)*(cos(theta)*sin(psi) + cos(psi)*sin(phi)*sin(theta)) -
    cos(phi)*sin(phi)*sin(theta), cos(theta)*(cos(psi)*cos(theta) -
    sin(phi)*sin(psi)*sin(theta)) + sin(theta)*(cos(phi)^2*sin(theta)
    + sin(phi)*(cos(theta)*sin(psi) + cos(psi)*sin(phi)*sin(theta))),
    sin(theta)*(cos(psi)*cos(theta) - sin(phi)*sin(psi)*sin(theta)) -
    cos(theta)*(cos(phi)^2*sin(theta) + sin(phi)*(cos(theta)*sin(psi) +
    cos(psi)*sin(phi)*sin(theta)))]
[ cos(phi)*(sin(psi)*sin(theta) - cos(psi)*cos(theta)*sin(phi)) +
    cos(phi)*cos(theta)*sin(phi), cos(theta)*(cos(psi)*sin(theta) +
    cos(theta)*sin(phi)*sin(psi)) - sin(theta)*(cos(phi)^2*cos(theta)
    - sin(phi)*(sin(psi)*sin(theta) - cos(psi)*cos(theta)*sin(phi))),
    cos(theta)*(cos(phi)^2*cos(theta) - sin(phi)*(sin(psi)*sin(theta) -
    cos(psi)*cos(theta)*sin(phi))) + sin(theta)*(cos(psi)*sin(theta) +
    cos(theta)*sin(phi)*sin(psi))]
```

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