9. Coordinate systems A and B are initially aligned and coincident. Coordinate system B is then rotated by an angle of thirty-five degrees about its X axis. It is then rotated 120 degrees about its new Y axis. You wish to return coordinate system B to its origin orientation (aligned with coordinate system A) by performing one rotation. About what axis and by what angle should B be rotated?

10. Write two computer functions named matmult and vecmult that will perform matrix multiplication and matrix and vector multiplication. The C language prototypes for these functions are as follows:

```
void matmult (double ans[4][4], double matrix1[4][4], double matrix2[4][4]);
void vecmult (double ans[4], double matrix1[4][4], double vector1[4]);
```

The function matmult will accept as input two 4×4 matrices, that is, matrix1 and matrix2. The product of matrix1 times matrix2 will be calculated, and the resulting 4×4 matrix will be returned by the function via the parameter ans.

The function vecmult will accept as input one 4×4 matrix and one 4×1 vector, that is, matrix1 and vector1. The product of the matrix times the vector will be calculated, and the resulting 4×1 vector will be returned by the function via the parameter ans. Test your functions by calling them from a main program.

11. Write a computer function named invert_transform that will calculate the inverse of a 4×4 transformation matrix. The C language prototype for this function is as follows:

```
void invert_transform (double result[4][4], double tran[4][4]);
```

The parameter tran will be a 4×4 transformation matrix that is input to the function. The inverse of tran will be calculated and returned via the parameter result. Test your function by calling it from a main program.