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AE 4361 Question 2 & 3

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```
clc
clear
close all
format long
```

Q2

```
% Sat positions
QZS1 = [-11.28, 127.27, 34666.42];
QZS2 = [41.68, 137.46, 38886.86];
QZS3 = [0.050, 127.02, 35790.31];
QZS4 = [-11.12, 149.14, 34588.99];
% Part a

QZS1_ECEF = LatLong2ECEF(QZS1);
QZS2_ECEF = LatLong2ECEF(QZS2);
QZS3_ECEF = LatLong2ECEF(QZS3);
QZS4_ECEF = LatLong2ECEF(QZS4);

% Part b
rho_1 = norm(QZS1_ECEF);
rho_2 = norm(QZS2_ECEF);
rho_3 = norm(QZS3_ECEF);
rho_4 = norm(QZS4_ECEF);
```

Q3

```
rho1 = 36536.1926;
rho2 = 39061.5413;
rho3 = 36817.8847;
rho4 = 36735.0892;
err = 1E-4;

user_pos = pos_sol(rho1,QZS1_ECEF,
 rho2,QZS2_ECEF,rho3,QZS3_ECEF,rho4,QZS4_ECEF,err);

% Find lat, long, h
h = norm(user_pos(1:3)) - 6371;
lamb = atan2(user_pos(2),user_pos(1));
```

```
phi = (asin(user_pos(3,1)/norm(user_pos(1:3))));
% Turn lambda and phi into degrees
lat = rad2deg(phi);
lon = rad2deg(lamb);
```

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