

```
clear all;
clc;

%%%%%%%%%%%%%
% Parameters %
%%%%%%%%%%%%%

r = 1; % Earth's radius
D = 60; % Distance Earth - Moon

angle = [0:.1:2*pi];

for m = 1:size(angle,2)
    x(m) = r*cos(angle(m)); % x coordinate on the Earth's surface
    y(m) = r*sin(angle(m)); % y coordinate on the Earth's surface
    R(m) = sqrt(D^2 + r^2 + 2*D*r*cos(angle(m))); % Distance Moon - Earth's surface
    Fx(m) = -((D + r*cos(angle(m)))/R(m)^3 - 1/D^2); % x component of tidal force
    Fy(m) = -r*sin(angle(m))/R(m)^3; % y component of tidal force
end

angleaux = [0:.01:2*pi];
for m = 1:size(angleaux,2)
    xaux(m) = r*cos(angleaux(m));
    yaux(m) = r*sin(angleaux(m));
end

quiver(x,y,Fx,Fy)
axis([-1.5 1.5 -1.5 1.5]);
hold on
plot(xaux, yaux, '-')
hold off
```