MATLAB Assignment 1
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21601418 – EEE391 Section 1

Part a)
My id is 21601418, so;
d1= 2, d2= 1, d3= 6, d4= 0, d5= 1, d6 =4, d7 = 1, d8 = 8;

My frequency: 14 rad/s;

My amplitude values: A1 = 4, A2 = 1, A3 = 8;

My phase values in degrees. Ø1= 14°, Ø2 = 141°, Ø3 = 418°;

Ø1= 14° = 0.2443 rad

Ø2 = 141° = 2.4609 rad

Ø3 = 418° = 58° = 1.0123 rad

Part b)

(i) Asking values to the user

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What is the ωo value? 14
What is the A1 value? 4
What is the A2 value? 1
What is the A3 value? 8
What is the Ø1 value? in degree 14
What is the Ø2 value? in degree 141
What is the Ø3 value? in degree 58
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(ii) Result of amplitude and phase values respectively

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A = 11.1433
Phase in degree = 48.7766
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(iii) Resulting sinusoidal signal in form of given on assignment

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x(t) = 11.14 cos(14t + 0.85)
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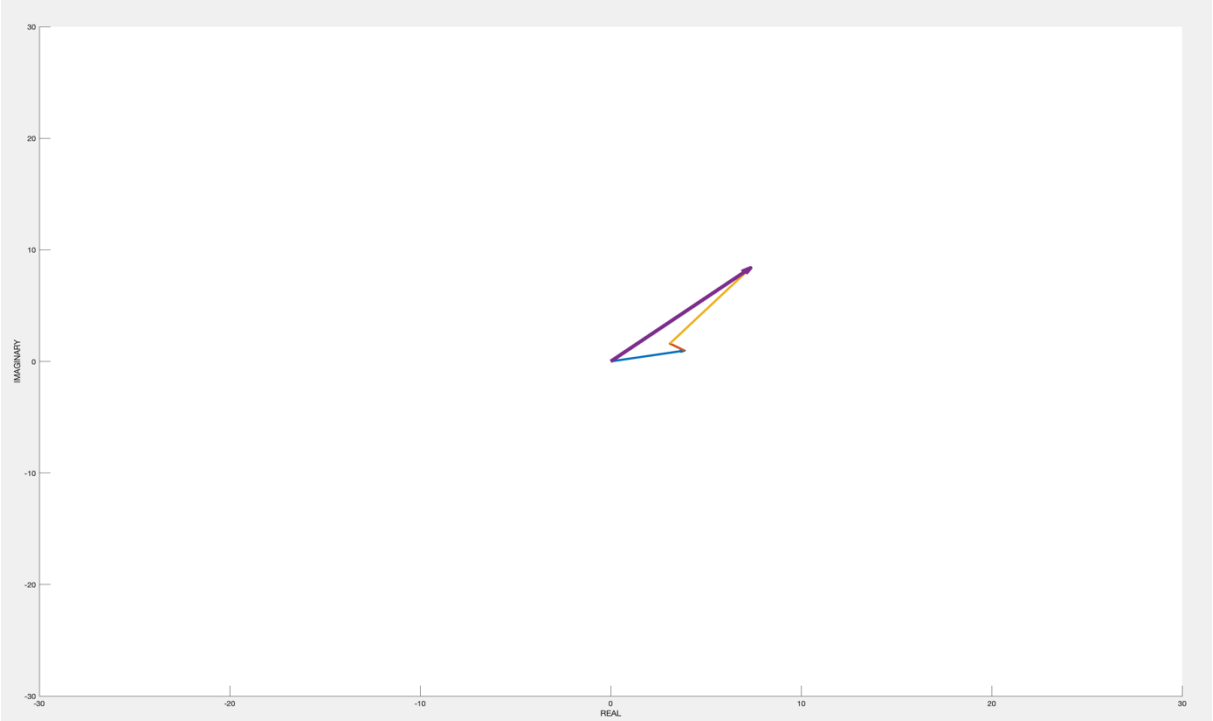
(iv) Phasor addition geometrically:

(v) Three phasors end-to-end to demonstrate phasor addition:



CODES)

```
prompt = 'What is the Ï‰o value? ';
w0 = input(prompt);

prompt = 'What is the A1 value? ';
a1 = input(prompt);

prompt = 'What is the A2 value? ';
a2 = input(prompt);

prompt = 'What is the A3 value? ';
a3 = input(prompt);

prompt = 'What is the Ã˜1 value? in degree ';
o1 = input(prompt);

prompt = 'What is the Ã˜2 value? in degree ';
o2 = input(prompt);

prompt = 'What is the Ã˜3 value? in degree ';
o3 = input(prompt);

orad1 = deg2rad(o1);
orad2 = deg2rad(o2);
orad3 = deg2rad(o3);

result = (a1*exp(1i*orad1))+(a2*exp(1i*orad2))+(a3*exp(1i*orad3));
resultA = abs(result);
fprintf("A = %.4f\n",resultA);
resultPrad = angle(result);
resultPdeg = rad2deg(resultPrad);
fprintf("Phase in degree = %.4f\n",resultPdeg);
resultPrad = -1;
alwaysPosPrad = abs(resultPrad);
if resultPrad > 0
    fprintf("x(t) = %.2f cos(%dt + %.2f)\n", resultA, w0, alwaysPosPrad);
else
    fprintf("x(t) = %.2f cos(%dt - %.2f)\n", resultA, w0, alwaysPosPrad);
end

hold on;
rep1 = a1.*exp(1i*orad1);
quiver(0,0,real(rep1),imag(rep1),"LineWidth",3,'AutoScale','off');
hold on;
rep2 = a2.* exp(1i*orad2);
quiver(0,0,real(rep2),imag(rep2),"LineWidth",3,'AutoScale','off');
hold on;
rep3 = a3.*exp(1i*orad3);
quiver(0,0,real(rep3),imag(rep3),"LineWidth",3,'AutoScale','off');
hold on;
rep4 =  resultA * exp(1i* resultPrad);
quiver(0,0,real(rep4), imag(rep4), "LineWidth", 5,'AutoScale','off');
xlabel("REAL");
ylabel("IMAGINARY");
xlim([-30 30]);
ylim([-30 30]);

figure
```

```
hold on;
quiver(0,0,real(rep1),imag(rep1),"LineWidth",3,'AutoScale','off');

hold on;
quiver(real(rep1),imag(rep1),real(rep2),imag(rep2),"LineWidth",3,'AutoScale
','off');

hold on;
quiver(real(rep1) + real(rep2),imag(rep1) +
imag(rep2),real(rep3),imag(rep3),"LineWidth",3,'AutoScale','off');

hold on;
quiver(0,0,real(rep4), imag(rep4), "LineWidth", 5,'AutoScale','off');

xlim([-30 30]);
ylim([-30 30]);
xlabel("REAL");
ylabel("IMAGINARY");
```