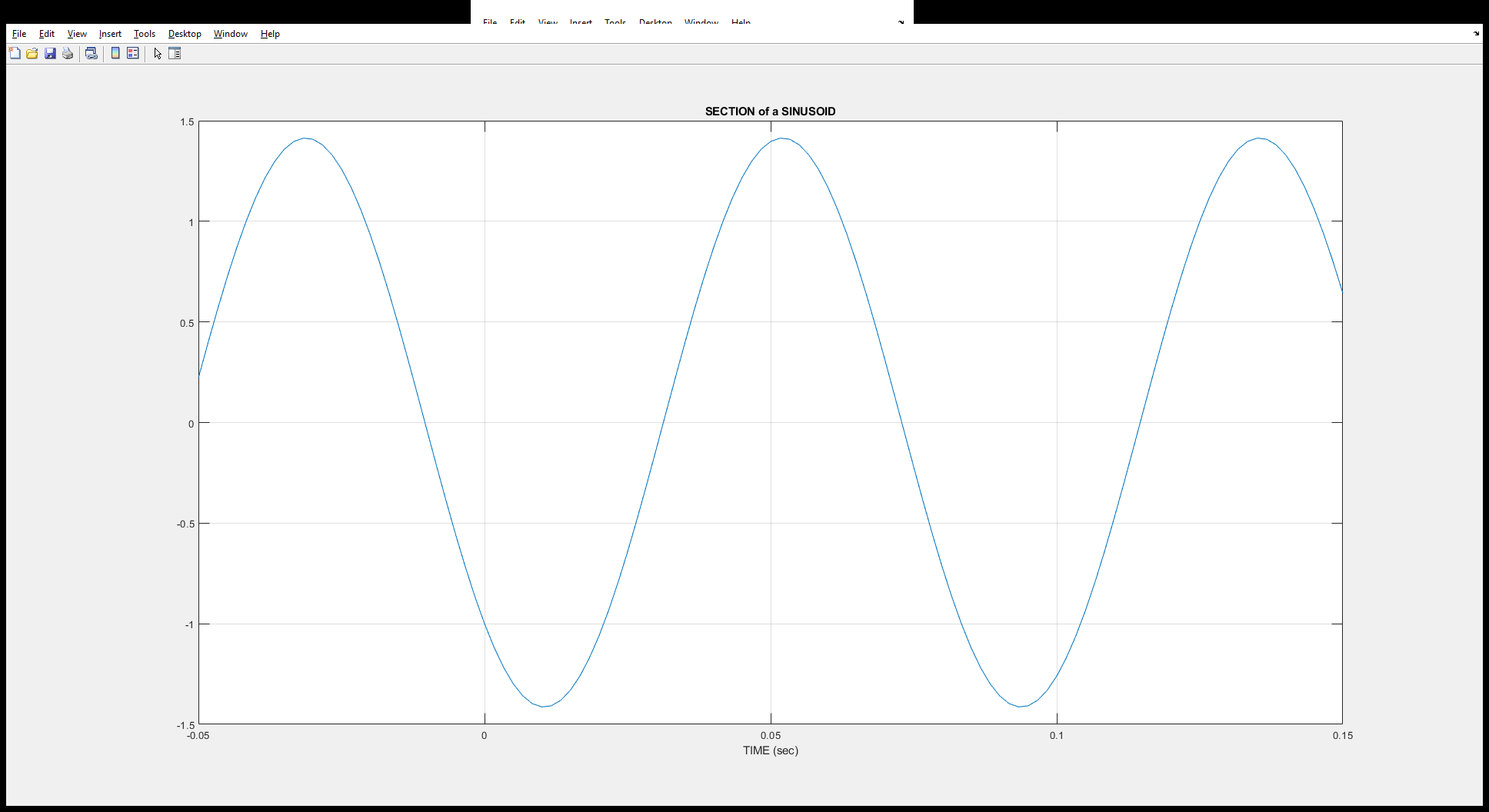
**Problem 1**

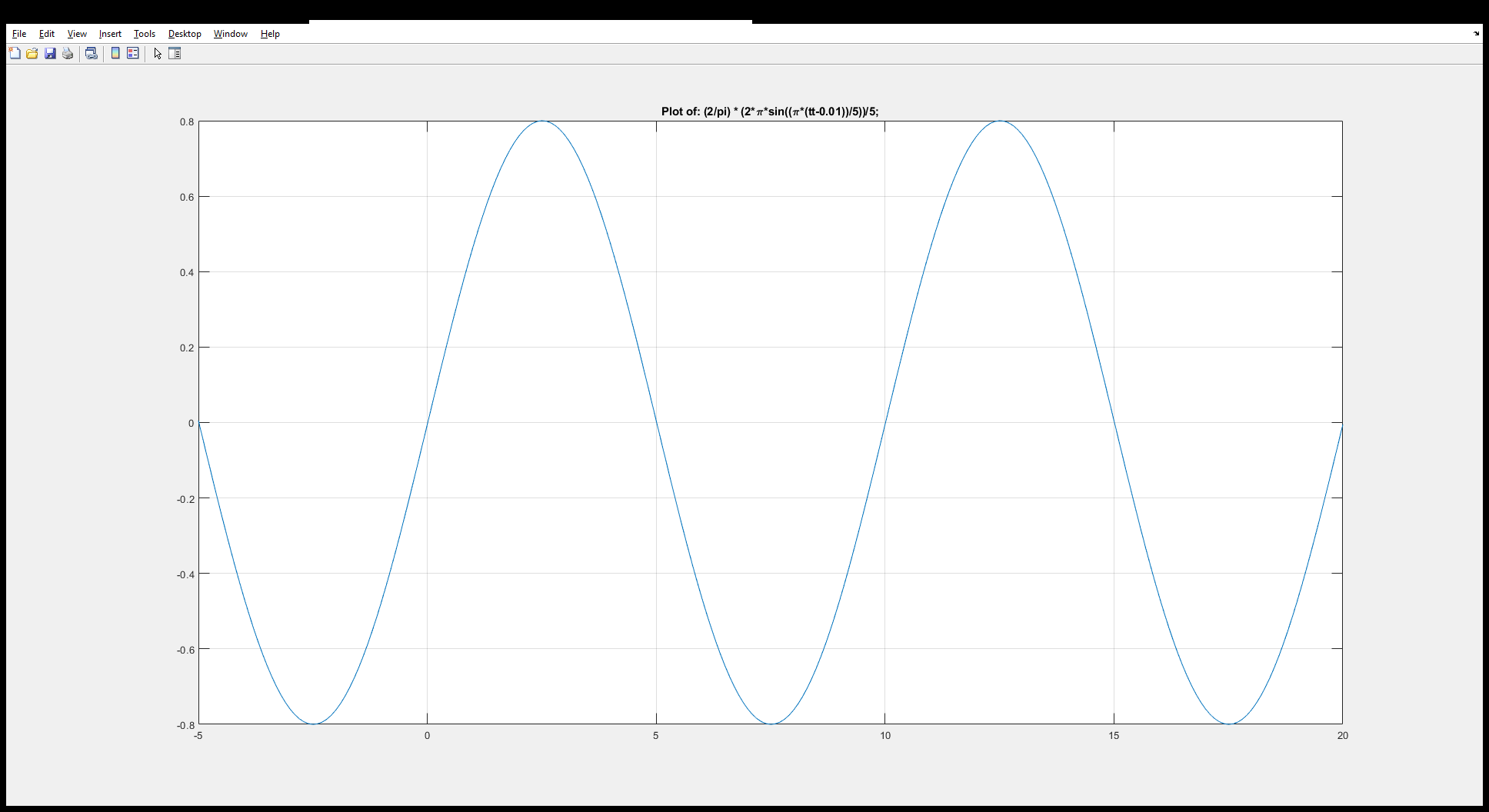


A =

ϕ =

T = 0.0834

**Problem 2**

1. A = 2
2. 

**Problem 3**

1. xa(t)

xa = 2 \* cos(27 \* pi \* tt - (2\*pi)/3) - cos(27 \* pi \* tt + (3\*pi)/4);

xxa = real( 2 \* (exp(1j \* 27 \* pi \* tt)\*(exp(-1j \* (2 \* pi)/3))) - (exp(1j \* 27 \* pi \* tt)\*exp(1j \* (3 \* pi)/4)) );

xa1 = 2 \* (exp(-1j \* (2 \* pi)/3));

xa2 = -1 \* exp(1j \* (3 \* pi)/4);

xa1 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

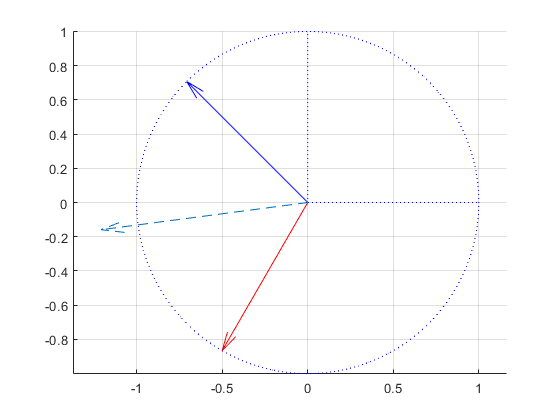
-0.5 -0.866 1 -2.094 -0.667 -120.00

xa2 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

-0.7071 0.7071 1 2.356 0.750 135.00

xa1 + xa2 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

-1.207 -0.1589 1.218 -3.011 -0.958 -172.50



1. xb(t)

xb = sqrt(3) \* cos(18.776 \* pi \* tt + 15.5 \* pi) + 3 \* cos(18.776 \* pi \* tt - 12.5 \* pi) + sqrt(3) \* cos(18.776 \* pi \* tt + 18 \* pi);

xxb = real( sqrt(3) \* (exp(1j \* 18.776 \* pi \* tt)\*exp(1j \* 15.5 \* pi)) + 3 \* (exp(1j \* 18.776 \* pi \* tt) \* exp(-1j \* 12.5 \* pi)) + sqrt(3) \* (exp(1j \* 18.776 \* pi \* tt) \* exp(1j \* 18 \* pi)) );

xb1 = sqrt(3) \* exp(1j \* 15.5 \* pi);

xb2 = 3 \* exp(-1j \* 12.5 \* pi);

xb3 = sqrt(3) \* exp(1j \* 18 \* pi);

xb1 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

-6.365e-15 -1.732 1.732 -1.571 -0.500 -90.00

xb2 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

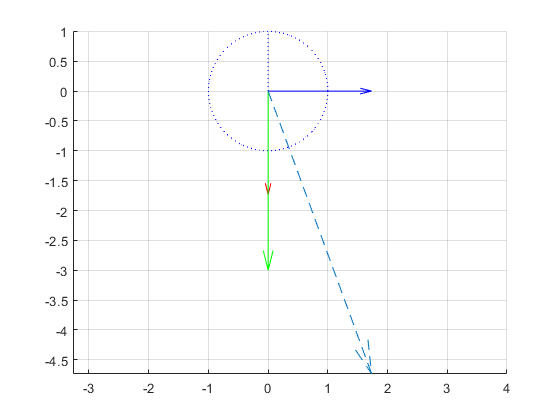
-7.366e-16 -3 3 -1.571 -0.500 -90.00

xb3 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

1.732 -3.818e-15 1.732 -0.000 -0.000 -0.00

xb1 + xb2 + xb3 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

1.732 -4.732 5.039 -1.220 -0.388 -69.90



1. x­c(t)

xc = cos(120 \* pi \* tt + (3\*pi)/4) + cos(120 \* pi \* tt + (5\*pi)/4) + (2 \* sin(120 \* pi \* tt - pi/4)) + (2 \* sin(120 \* pi \* tt + pi/4));

xxc = -real( ...

( exp(1j \* 120 \* pi \* tt) \* exp(1j \* 3\*pi/4) ) + ...

( exp(1j \* 120 \* pi \* tt) \* exp(1j \* 5\*pi/4 ) ) + ...

( 2 \* (-exp(1j \* 120 \* pi \* tt) \* exp( -1j \* 3\*pi/4 ) ) ) + ...

( 2 \* (exp(-1j \* 120 \* pi \* tt) \* exp( 1j \* -pi/4 ) ) ) ...

);

xc1 = exp(1j \* 3\*pi/4);

xc2 = exp(1j \* 5\*pi/4);

xc3 = 2 \* exp( -1j \* 3\*pi/4 );

xc4 = 2 \* exp( 1j \* -pi/4 );

xc1 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

-0.7071 0.7071 1 2.356 0.750 135.00

xc2 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

-0.7071 -0.7071 1 -2.356 -0.750 -135.00

xc3 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

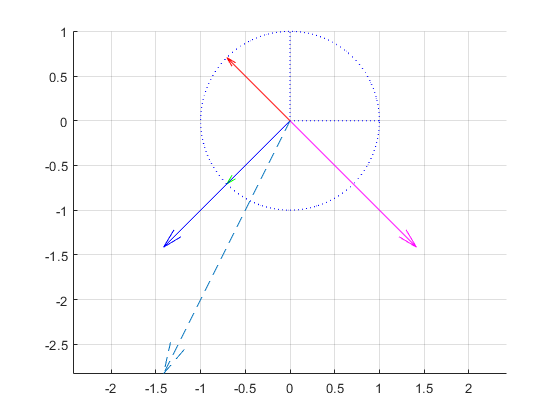
-1.414 -1.414 2 -2.356 -0.750 -135.00

xc4 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

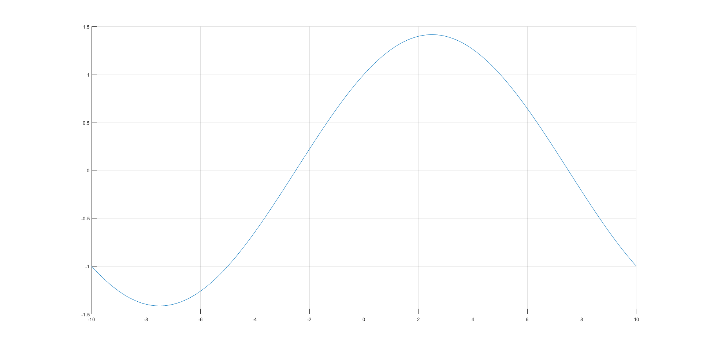
1.414 -1.414 2 -0.785 -0.250 -45.00

xc1 + xc2 + xc3 + xc4 Z = X + jY Magnitude Phase Ph/pi Ph(deg)

-1.414 -2.828 3.162 -2.034 -0.648 -116.57



**Problem 4**

1. ω0 = 0.1π

1 period included in -10 < t < 10

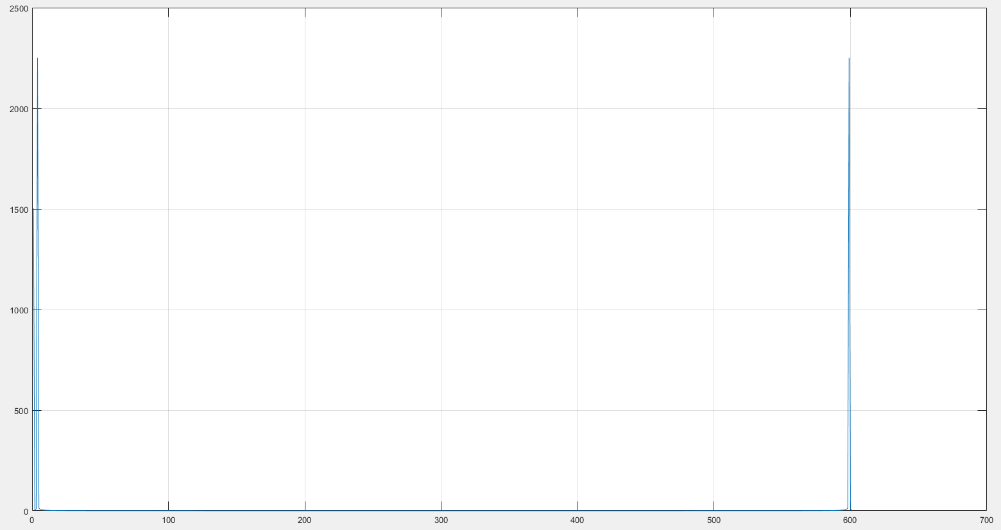
**Problem 5**

**Problem 6**

1. Dc component: -2.5

ω = π

1. @ frequency 4 Hz, peak @ 2251.8

@ frequency 600 Hz, peak @ 2251.8