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| 1 | Travel of an object |

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| **Code** |

%Given that

v = 128748 / 3600; %80 miles per hour

theta = 45 \* (pi / 180) ; %in radian

g = 9.8 ;

% travel time of flight

Travel\_time = (2 \* v \* sin(theta)) / g

% distance the ball travelled

distance\_traveled = v \* Travel\_time \* cos(theta)

Fs = 100;

T = 1 / Fs;

dt = 0:T:Travel\_time-T;

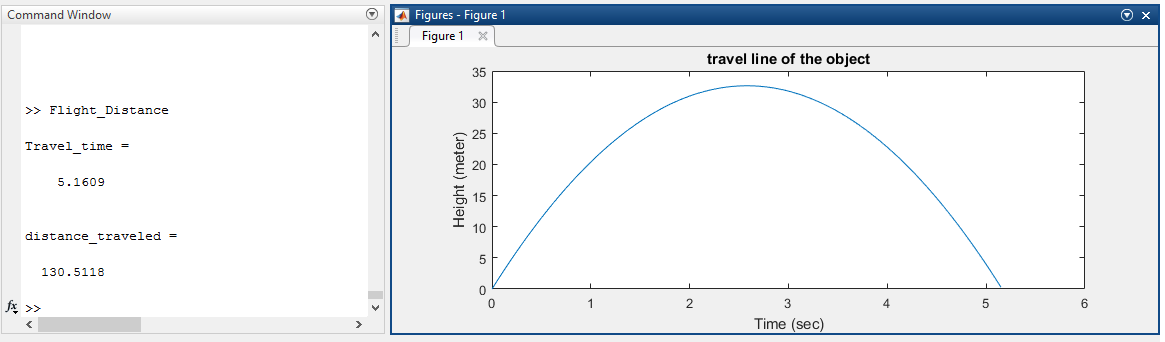
high = (v \* dt \* sin(theta)) - (.5 \* g \* dt.^2);

plot(dt,(high));

xlabel('Time (sec)'); ylabel('Height (meter)');

title('travel line of the object');

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| **Output** |



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| 2 | Compute SNR |

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| **Code** |

Fs = 1000 ;

T = 1/Fs ;

f = 5 ;

dt = 0:T:1-T ;

s = 5 \* sin(2\*pi\*f\*dt) ; % original signal

n = wgn(1,length(dt),0); % noise signal

x = s + n; % noisy signal

subplot(311);

plot(dt,s); title('Original Signal');

subplot(312);

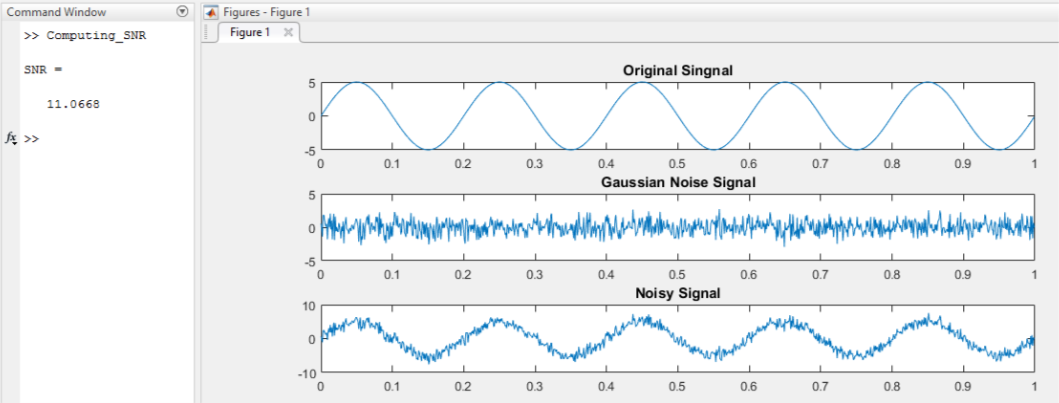
plot(dt,n); title('Gaussian Noise Signal');

subplot(313);

plot(dt,x); title('Noisy Signal');

SNR = snr(s,n)

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| **Output** |



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| 3 | Discontinuous Signal |

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| **Code** |

Fs = 100 ;

T = 1/Fs ;

f = 0.3 ;

dt = 0:T:50-T ;

subplot(211);

y = 5 \* sin(2\*pi\*f\*dt) ;

y(y<0) = 0; % if the value is <0 then it is 0

plot(dt,y);

axis([xlim -.2 5.1]); %showing y axis from -.2 to 5.1

xlabel('time (sec)'); ylabel('amplitude');

title('A positive value sine signal');

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| **Output** |

