Roy Raw Quiz #3

2. Linear Image Processing

3) The number written below and under the cowpit is 05M

4) This is a Sukhoi SU-57

Roy Zorro Quiz 17-3

1. $f_d = \frac{2vf_t}{c}$

$f_d = \frac{2 \cdot 300 m/s \cdot 1 \cdot 10^9}{3 \cdot 10^8 m/s}$

$f_d = 2 \cdot 10^3 Hz$

$f_d = 2000 Hz$

b) $\Delta f = \frac{1}{T}$, $T = \frac{1}{f_d}$

$T = \frac{1}{2000 Hz} = 0.5 ms$

The required duration to record is 0.5 ms.

c) $N = \frac{2 \cdot 10^9}{5 \cdot 5 \cdot 10^{-4}}$

$N = 10^6$ samples, the waveform contains 10^6 samples.

2. a) $R = \frac{c \cdot t}{2}$, $\Delta t = \frac{\Delta f}{k}$

$R = \frac{c \Delta f}{2k}$

b) $R = \frac{300 m/MHz \cdot 25 MHz}{2 \cdot 1 MHz/\mu s}$

$R = \frac{7500}{2}$

$R = 3750 m$

$R = \frac{3750 \cdot km}{1000}$

$R = 3.75 km$