Assignment

1. If X and Y are two random variables having joint density function:

$$f(x,y) = \begin{cases} \frac{1}{8}(6-x-y); 0 \le x < 2, 2 \le y < 4 \\ 0; otherwise \end{cases}$$

Find (i) P(X<1,Y<3)
(ii) P(X+Y <3)
(iii) P(X<1|Y<3).

2. In a precision bombing attack there is a 50% chance that any one bomb will strike the target. Two direct hits are required to destroy the target completely. How many bombs must be must be dropped to give a 99% chance or better of completely destroying the target?