

Lsn 2 Board Problem:

Solution

1. There are 6 Apache in an Attack Helicopter Company. Model their availability (ie, number of helicopters available at any time).

$X = \#$ of helicopters operational

X	$P(X=x)$
0	.01
1	.04
2	.15
3	.15
4	.40
5	.20
6	.1

2. MLRS SPLL fuel tanks hold 300 gallons. Model the amount of fuel each SPLL will take as it shows up to your fuel depot. You believe the probability density has the form $f(x) = cx^2$.

a. Compute the PDF, be sure to list restrictions on the domain

$$\int_0^{300} cx^2 = 1 \quad \frac{c}{3} x^3 \Big|_0^{300} = 1 \quad 300^3 = \frac{3}{c} \Rightarrow c = \frac{1}{9000000}$$

$f(x) = \frac{x^2}{9000000} \quad 0 < x < 300$

b. Find the probability that the next SPLL will require less than $\frac{1}{2}$ a tank of fuel.

$$\int_0^{150} \frac{x^2}{9000000} = \frac{x^3}{3 \cdot 9000000} \Big|_0^{150} = \frac{1}{8}$$

c. Find the probability that the next 3 SPLLs will require less than $\frac{1}{2}$ a tank each.

$$\left(\frac{1}{8}\right)^3$$