3.6 Geometric Probability using the Excel Sheet provided

Suppose the probability that a red car enters an intersection is 0.24. What is the probability that the first red car enters the intersection after four non-red vehicles pass through the intersection? The discrete probability distribution is Geometric.

P(Red Car) = .24
P(Not Red Car) = 1-.24 = .76

To find the probability P(X = 5) follow the steps below.

- **Step 1:** Enter 0.24 in cell B1 and hit the Enter key.
- **Step 2:** Find 5 in column A at cell A9.
- **Step 3:** Move to column B, cell B9. The answer is 0.0801

To find the probability P(X $\leq$ 8), follow the steps below.

- **Step 1:** Find 8 in column A at cell A12.
- **Step 2:** Move to column B, cell B12. The answer is 0.8887.

To find the probability P(X $\geq$ 10), follow the steps below.

- **Step 1:** Find 9 in column A at cell A13.
- **Step 2:** Move to column C, cell C13. The answer is 0.9154.
- **Step 3:** Subtract 0.9154 from 1, (1 - 0.9154 = 0.0846).

To find the probability P(X < 7) = P(X $\leq$ 6), follow the steps below.

- **Step 1:** Find 6 in column A at cell A10.
- **Step 2:** Move to column C, cell C10. The answer is 0.9357.

To find the probability P(X > 4) = P(X $\geq$ 5), follow the steps below.

- **Step 1**: P(X $\geq$ 5) = 1 - P(X $\leq$ 4).
- **Step 2:** Find 4 in column A at cell A8.
- **Step 3:** Move over to cell C8, 0.6664.
- **Step 4:** Subtract 0.6664 from 1, 1 - 0.6664 = 0.3336.

The **Mean** is in cell F1, 4.16667.

The **Variance** is in cell F2, 13.1944.

The S**tandard Deviation** is in cell F3, 3.63.