1. $n = 6$

$p = 0.10$

$P_2 = \binom{6}{2} 0.1^2 \; 0.9^{6-2}$

$P_2 = \binom{6}{2} 0.01 \times 0.6561$

$P_2 = 0.019683 \times 100$

$\Rightarrow$ 1.9683 %

$$P_x = \binom{n}{x} p^x q^{n-x}$$

- P = binomial probability
- x = number of times for a specific outcome within n trials
- $\binom{n}{x}$ = number of combinations
- p = probability of success on a single trial
- q = probability of failure on a single trial
- n = number of trials

2. $n = 6$

$x = 1, 2, 3$

$q = 0.9$

$p = 0.1$

$P_1 = \binom{6}{1} 0.1^1 \; 0.5^{6-1}$

$P_1 = \binom{6}{1} 0.1 \; 0.5^5$

$P_1 = 6 \times 0.1 \times 0.59049$

$P_1 = 0.354294 \Rightarrow$ 35.42 %

$P_3 = \binom{6}{3} 0.1^3 \; 0.5^3$

$P_3 = 2\,(0.001)\,(0.729)$

$P_3 = 0.001458$

$P_3 =$ 0.1458 %

$35.42 + 1.97 + 0.14 \Rightarrow$ 37.53 %

$P = \binom{6}{1} 0.5 \; 0.1$

$P = 6 \times 0.5 \times 0.00001$

$P = 0.0054$

3. 0 enemies killed

$$P_x = \binom{n}{x} p^x q^{n-x}$$

- P = binomial probability
- x = number of times for a specific outcome within n trials
- $\binom{n}{x}$ = number of combinations
- p = probability of success on a single trial
- q = probability of failure on a single trial
- n = number of trials

4. $P_x = \binom{n}{x} p^x q^{n-x}$

$P = \binom{n}{x} p^x q^{n-x}$

$\binom{n}{x} = \frac{P^x q^{n-x}}{P} \Rightarrow \binom{n}{x} \times q^{n-x} = \frac{P^x}{P}$

$\binom{n}{2} \times 0.980317^{n-2} = \frac{0.019683^2}{0.8}$

$\binom{n}{2} \times 0.980317^{n-2} = 0.000484256$