

Assignment 3 -Probability and Random Variable

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Problem Statement prob 3.2-An experiment succeeds twice as often as it fails. Find the probability that in the next six trials, there will be at least 4 successes.

Solutions:

Success: Failure ratio :2:3

It means prob of success = $p = \frac{2}{3}$,

Prob of failure = $q = \frac{1}{3}$

Let X be total number of successes in n trials, n = 6

$$Pr(X \geq 4) = \binom{6}{4}p^4q^2 + \binom{6}{5}p^5q + \binom{6}{6}p^6q^0,$$

= **0.6804, is the required probability**

Type of distribution = binomial(n,p) = binomial(6, $\frac{2}{3}$)