6.8 Binomial Experiments

$P \neq \frac{1}{2}$

Binomial - 2 results

$P \neq \frac{1}{2}$ two events are not equally likely

P(Left) P(right)

Binomial Experiments

Events are complimentary

$P(A) + P(\sim A) = 1$

$P(L) + P(R) = 1$

$P(D) + P(F) = 1$

$P(L) = 0.1 \quad P(R) = .9$

If 3 people are in a classroom what is the prob that 2 are Lefties

- L
  - L
    - L = LLL = (0.1)(0.1)(0.1) = 0.001
    - R = LLR = (0.1)(0.1)(0.9) = 0.009
  - R
    - L = LRL = (0.1)(0.9)(0.1) = 0.009
    - R = LRR = (0.1)(0.9)(0.9) = 0.081
- R
  - L
    - L = RLL = (0.9)(0.1)(0.1) = 0.009
    - R = RLR = (0.9)(0.1)(0.9) = 0.081
  - R
    - L = RRL = (0.9)(0.9)(0.1) = 0.0081
    - R = RRR = (0.9)(0.9)(0.9) = 0.729

$3(0.009) = 0.027$

$3(0.081) = 0.243$

2 Lefts out of 3 people

$n = 3 \quad r = 2$

$_3C_2 = 3 \quad 1\ 3\ \textcircled{3}\ 1$

$P(L)\ 0.1 \quad P(R)\ 0.9$

$3\,(0.1)(0.1)(0.9) = 3(0.009)$

$= 0.027$

$P(D) = 0.7 \quad P(F)\ 0.3$

On Tuesday 5 people tested

Prob that 3 passed

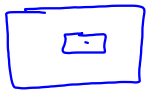
$_5C_3$

1 5 10 10 5 1

$(0.7)(0.7)(0.7)(0.3)(0.3)$

$10(0.03087)$

$= 0.31$



area of target / area of total