Answer on Question #67010 – Math – Statistics and Probability

Question

A survey was recently done in a certain town to determine readership of newspapers available. 50% of the resident read Daily Nation, 60% read the standard and 20% read both newspapers. Determine the probability that a resident selected does not read any newpaper.

Solution

We denote the event 'a resident reads Daily Nation' by *DN*, the event 'a resident reads Standard' by *S* and the event 'a resident does not read any newspaper' by *A*.

Then

$$P(DN) = 0.5,$$

$$P(S) = 0.6,$$

$$P(DN \ and \ S) = 0.2.$$

By the addition law of probability,

$$P(DN \ or \ S) = P(DN) + P(S) - P(DN \ and \ S) = 0.5 + 0.6 - 0.2 = 0.9.$$

The event A can be represented as a complementary event to $DN \ or \ S$.

Therefore,

$$P(A) = P((DN \ or \ S)^c) = 1 - P(DN \ or \ S) = 1 - 0.9 = 0.1$$

or 10% of the resident selected does not read any newpaper.

Answer: 0.1.