

Try It Probabilities – Completed in class 11/13/2018

The following table shows the results of a survey of 200 authors by a publishing company.

	New Authors	Established Authors	Total
Successful	16	44	60
Unsuccessful	38	102	140
Total	54	146	200

Compute the relative frequency of the following events.

- a) An author is successful and new.

“An author” gives the total sample space of 200 authors.

“Successful and new” =  $n(S \cap N) = 16$

Therefore the relative frequency (probability) is  $\frac{16}{200} = 0.08$

- b) An author is a new author.

“An author” gives  $n(S) = 200$

“New author” gives  $n(N) = 54$

Therefore the relative frequency (probability) is  $\frac{54}{200} = 0.27$

- c) A successful author is established.

“A successful author” is the top row, this is all we consider,  $n(S) = 60$

“Established” only comes from those authors in the top row of successful,  $n(E) = 44$

Therefore the relative frequency (probability) is  $\frac{44}{60} = \frac{11}{30} = 0.366666 \dots \approx 0.37$

- d) An established author is successful.

“An established author” gives  $n(E) = 146$ . We only consider this column.

“Successful” gives only the successful authors that are established,  $n(S) = 44$

Therefore the relative frequency (probability) is  $\frac{44}{146} = \frac{22}{73} = 0.301369863 \approx 0.30$