

On April 15, 1912, the Titanic struck an iceberg and rapidly sank with only 710 of her 2,204 passengers and crew surviving. Below is some data on the outcome on this tragic event.

	Survive	Did not survive	Total
First class passengers	201	123	324
Second class passengers	118	166	284
Third class passengers	181	528	709
Total passengers	500	817	1317

This total does not include the crew

Calculate the following probabilities. Leave your answer as a decimal (not a fraction or a percent), rounded to three decimal places.

A. If one of the passengers is randomly selected, what is the probability that this passenger was in first class?

$$P(A) = \frac{324}{1317} \approx 0.246$$

A

B. If one of the passengers is randomly selected, what is the probability that this passenger survived?

$$P(B) = \frac{500}{1317} \approx 0.380$$

B

C. If one of the passengers is randomly selected, what is the probability that this passenger was in first class and survived?

$$P(A \cap B) = \frac{201}{1317} \approx 0.153$$

D. If one of the passengers is randomly selected from the first class passengers, what is the probability that this passenger survived? (That is, what is the probability that the passenger survived, given that this passenger was in first class?)

$$P(B|A) = \frac{201}{324} \approx 0.620$$

E. If one of the passengers who survived is randomly selected, what is the probability that this passenger was in first class?

$$P(A|B) = \frac{201}{500} = 0.402$$

Note:

$$P(B|A) \neq P(A|B)$$

F. If one of the passengers who survived is randomly selected, what is the probability that this passenger was in third class?

$$P(D|C) = \frac{181}{500} = 0.362$$