



TWO WAY TABLES | EXAMPLE PROBLEM PAIRS

1E. The table shows the arrival time of a random sample of 100 letters, as well as whether they were posted first class or second class.

	Next day	Later
1 st class	64	16
2 nd class	12	8

Find:

- (a) $P(1^{\text{st}} \text{ class and next day})$
- (b) $P(\text{next day} \mid 1^{\text{st}} \text{ class})$
- (c) $P(1^{\text{st}} \text{ class} \mid \text{next day})$

1B. 22 children are at a Halloween party. The two-way table below shows the costumes that they are wearing:

	Werewolf	Zombie	Ghost	Total
Boys	4	3	3	10
Girls	2	4	6	12
Total	6	7	9	22

A child is picked at random.

- (a) Given that the child is a girl, what is the probability that they are dressed as a zombie?
- (b) Given that the child is dressed as a zombie, what is the probability that they are a girl?

2E. If it is raining in the morning, there is a 90% chance that Shivani will take will take her umbrella. If it is not raining in the morning, there is only a $\frac{1}{5}$ chance of taking her umbrella. On any given morning, the probability of rain is 0.1.

- (a) What is the probability that Shivani takes an umbrella?
- (b) If you see Shivani with an umbrella, what is the probability that it was raining that morning?

2P. Horace is either late for school or on time for school, and when he gets to school he is either shouted at or not shouted at.

The probability that he is late for school is 0.4

If he's late, the probability that he is shouted at is 0.7.

If he's on time, the probability that he is shouted at is 0.2.

Given that Horace is shouted at, what is the probability that he was late?
