

1. If $P(A) = 0.42$, $P(B) = 0.32$ and $P((A \cup B)') = 0.46$, what is $P(A \cap B)$?
2. A grade 12 student is selected at random to sit on a university liason committee. Of the 120 students enrolled in the grade 12 university-preparation mathematics courses:
 - 28 are enroled in data management (DM) only
 - 40 are enrolled in calculus only
 - 15 are enrolled in geometry only
 - 16 are enrolled in both DM and calculus
 - 12 are enrolled in both calculus and geometry
 - 6 are enrolled in both DM and geometry
 - 3 are enrolled in all three math courses
 - (a) What is the probability that the student will be in either DM or calculus?
 - (b) What is the probability that the student will be in only one of the three math courses?
 - (c) What is the probability that the student will be in none of the three math courses?
3. Down at the office and warehouse of Textbook City, the manager set up three categories to learn more about employee needs. The categories are: brings lunch to work; starts at 8 AM; works on Saturdays.

12 employees bring their lunch, while 42 bring lunch and belong in at least one other category. Similarly, 16 start at 8, while 41 start at 8 and bring lunch and/or work Saturday. There are 17 part-time workers who work only on Saturday, and there are an additional 55 full-time workers in on Saturday. 10 employees start at 8 AM and bring their lunch, but do not work weekends.

What is the probability that a randomly selected employee works on Saturday, brings their lunch and starts at 8 AM?