

Finite Mathematics (Math 10120), Spring 2018

Quiz 3, Monday March 5

Name: Solutions

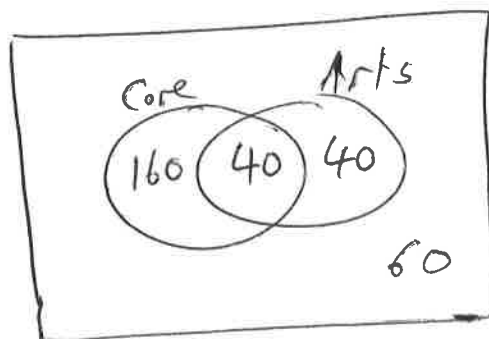
1. (5 pts) Of the 300 faculty at a campus-wide meeting last week,

- 200 support the new core curriculum,
- 80 were from the College of Arts and Letters, and
- 240 were either from Arts and Letters, or supported the new core curriculum, or both.

A faculty member who attended the meeting is selected at random. Let C be the event that the chosen faculty member supports the core curriculum, and let A be the event that (s)he is from Arts and Letters.

(a) Compute $P(C)$.

$$P(C) = \frac{200}{300} = \frac{2}{3}$$



(b) Compute $P(C|A)$.

$$P(C|A) = \frac{40}{80} = \frac{1}{2}$$

(c) Are C and A independent?

No, $P(C|A) \neq P(C)$

2. (5 pts) I roll a die 2 times. Find the probability that I first roll an even number and then roll a six.

(a) $5/12$

(b) $1/2$

(c) $1/6$

(d) $1/12$

(e) $1/2 + 1/6$

Even number first : $\frac{1}{2}$ ($\frac{3}{6}$)

then a six : $\frac{1}{6}$

Sequential, so $p = \frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$

$$\begin{aligned} P(\text{Even and Six}) &= P(\text{Even})P(\text{Six}|\text{Even}) \\ &= P(\text{Even})P(\text{Six}) \quad (\text{since two rolls are independent}) \\ &= \frac{1}{2} \times \frac{1}{6} = \frac{1}{12} \end{aligned}$$