

**Quiz 2 for Statistics 301**  
**Elementary Statistical Methods - Fall 1999**  
**Material Covered: Sections 4.1,4.2,4.3 of Workbook; Sections 4.1,4.2 of**  
**text**  
**For: 24th September**

Name (please print): \_\_\_\_\_  
last first

Data on the reaction to poison ivy and the time in which it was washed off is given below. For example, 330 people had a mild reaction if the poison ivy was washed off after 5 minutes to exposure.

reaction ↓ washed off →	within 5 minutes	after 5 minutes	total
none	420	5	470
mild	60	330	390
strong	20	120	140
	500	500	1000

For a person selected at random from this data, calculate the probability this person:

1. [1] Has a strong reaction: \_\_\_\_\_.
  
2. [1] Washed off the poison ivy within 5 minutes: \_\_\_\_\_.
  
3. [1] Had a mild reaction and washed off the poison ivy  
after 5 minutes. \_\_\_\_\_.
  
4. [1] Let event S be “strong reaction” and event W be “within 5 minutes”.  
Then,  $P(S|W) =$  \_\_\_\_\_.
  
5. [1] Had no reaction or washed off the poison ivy  
within 5 minutes \_\_\_\_\_.
  
6. [1] Explain, using a probability argument, why having no reaction depends on washing off the poison ivy after 5 minutes.

(a)  $\frac{140}{1000}$

(b)  $\frac{500}{1000}$

(c)  $\frac{330}{1000}$

(d)  $\frac{20}{500}$

(e)  $\frac{470+500-420}{1000} = \frac{550}{1000}$

(f)  $\frac{5}{1000} \neq \frac{470}{1000} \cdot \frac{500}{1000}$ , or  $\frac{5}{500} \neq \frac{470}{1000}$ , or  $\frac{5}{470} \neq \frac{500}{1000}$