

## Math 2

- \* test Friday
- \* take out Hw  
from last  
night.

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② The phrase "the probability event A occurs given that event B occurs" is written symbolically as  $P(A | B)$ . This conditional probability sometimes is read as "the probability of A given B." The table below categorizes the preferences of 300 students in a junior class about plans for their prom.

		Preference for Location		
		Hotel	Rec Center	
Preference for Band	Hip-Hop	73	80	153
	Classic Rock	55	92	147
<i>total</i>		128	172	300

Suppose you pick a student at random from this class. Find each of the following probabilities.

- a.  $P(\text{prefers hotel})$
- b.  $P(\text{prefers hip-hop band})$
- c.  $P(\text{prefers hotel and prefers hip hop band})$
- d.  $P(\text{prefers hotel or prefers hip hop band})$
- e.  $P(\text{prefers hotel} | \text{prefers hip-hop band})$
- f.  $P(\text{prefers hip-hop band} | \text{prefers hotel})$

a.  $128/300$

b.  $153/300$

c.  $73/300$

d.  $128 + 153 - 73 = 208/300$

e.  $73/153$

f.  $73/128$



### ✓ Check your Understanding

A survey of 505 teens by the American Academy of Dermatology included 254 boys and 251 girls. Thirty-three percent of the boys said they wear sunscreen, and 53% of the girls said they wear sunscreen.

- a. Fill in a copy of the following table, showing the number of teenagers who fell into each category:

	Boy	Girl	Total
Wear Sunscreen	84	133	217
Don't Wear Sunscreen	170	118	288
Total	254	251	505

Source: www.aad.org/public/News/NewsReleases/Press\_Release\_Archives/Skin-Cancer-and-Sun-Safety/Teen-Survey-Results.htm

- b. Suppose you pick one student at random from these 505 teens. Find the probability of each of the following events:
- $P(\text{wears sunscreen})$
  - $P(\text{is a boy})$
  - $P(\text{wears sunscreen and is a boy})$
  - $P(\text{wears sunscreen or is a boy})$
  - $P(\text{wears sunscreen} \mid \text{is a boy})$
  - $P(\text{is a boy} \mid \text{wears sunscreen})$

b.i.  $217/505$

ii.  $254/505$

iii.  $84/505$

iv.  $217 + 254 - 84 = \frac{387}{505}$

v.  $84/254$

vi.  $84/217$  Mel Keith

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