

### **S.CP.B.6: Conditional Probability**

- 1 A study was designed to test the effectiveness of a new drug. Half of the volunteers received the drug. The other half received a sugar pill. The probability of a volunteer receiving the drug and getting well was 40%. What is the probability of a volunteer getting well, given that the volunteer received the drug?
  
- 2 The guidance department has reported that of the senior class, 2.3% are members of key club,  $K$ , 8.6% are enrolled in AP Physics,  $P$ , and 1.9% are in both. Determine the probability of  $P$  given  $K$ , to the *nearest tenth of a percent*. The principal would like a basic interpretation of these results. Write a statement relating your calculated probabilities to student enrollment in the given situation.

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**Answer Section**

1 ANS:

$$P(W/D) = \frac{P(W \cap D)}{P(D)} = \frac{.4}{.5} \approx .8$$

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2 ANS:

$$P(P/K) = \frac{P(P \cap K)}{P(K)} = \frac{1.9}{2.3} \approx 82.6\% \text{ A key club member has an 82.6\% probability of being enrolled in AP Physics.}$$

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