**Practicing identification and notation for unconditional and conditional probabilities**

Write the following in proper notation, and tell me what your variables mean if you are not using English phrases.

You are a marketing researcher and are interested in studying all the customers of all your products.

1. What is the chance that a randomly selected customer is between 18 and 24 years of age?

2. What is the chance of a female customer being between 18 and 24 years of age?

3. What is the chance that a customer who is between 18 and 24 years of age is female?

4. What is the chance that a randomly selected customer makes between $50K and $75K inclusive, per year?

5. Given a married male customer, what is the chance he makes between $50K and $75K inclusive, per year?

6. what is the chance a married female customer makes between $50K and $75K inclusive, per year?

You own and run a retail clothing store and want to see what is selling or not. Put the numbers to your notation as appropriate. Your sales are split 50-50 between men’s and women’s clothing.

1. 25% of your sales are of large size garments.

2. If a sale is of a large-size garment, the chance it is a men’s garment is 60%.

3. If a sale is of a woman’s garment, the chance it is large size is 30%.

4. When a sale is of a pink garment, the chance it is a women’s garment is 90%.

5. If a sale is of a women’s garment, the chance it is pink is 10%.

6. The chance a garment sold is pink is 3%.