

Practice Set 8 Probability Part II Multiplication Rules

- I. Below is the data Darin Jones collected concerning sales to customers of different ages. (see page 42) Convert Table 1 to decimals and place the information into Table 2.

Analysis of Sales By Age of Customer (Table 1)				Decimals (Table 2)		
Customer Age Sale	Less than or equal to 20	Over 20	Totals	Less than or equal to 20	Over 20	Totals
No	16	8	24			
Yes	24	12	36			
Totals	40	20	60			

- II. Use a formula to calculate the probability of these events and check your answers using Table 2.

A. The probability of a customer being over 20 years old is _____.

B. The probability of a customer being over 20 years old and not making a sale is _____.

C. The probability of a customer being less than or equal to 20 years old and over 20 years old is _____.

D. Was the special rule of multiplication applicable to question B? Why or why not? Could the special rule of multiplication be used by Linda with the page 46 advertising data? Why or why not?

III. Use Bayes' theorem to calculate the probability of making a sale given a customer is less than or equal to 20 years of age.

IV. Recalculate your answer to question III using Table 2 on page 48.

V. Use Linda's page 46 advertising data to calculate the possibility of having monthly advertising over \$5,000 and monthly sales over \$50,000.

VI. Answer these questions about 5 posters Darin has to advertise a new CD recorder/player. Be sure to show all formulas.

A. How many ways can he arrange these posters in a horizontal line across a wall?

B. How many ways can he arrange only 3 posters? Arrange implies that order counts. AB is not the same as BA and that both should be counted.

C. How many ways can he just hang them? (order doesn't count)

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