AP STAT   Section 6.3: Conditional Probability Worksheet   Name _____

Use the table to answer these questions.

Age and Marital Status of Women (thousands of women)

	AGE			
	18 to 24	25 to 64	65 and over	Total
Married	3,046	48,116	7,767	58,929
Never Married	9,289	9,252	768	19,309
Widowed	19	2,425	8,636	11,080
Divorced	260	8,916	1,091	10,267
Total	12,614	68,709	18,262	99,585

1. How many women are married and age 18 to 24 years old? _____

2. What is the probability that a woman is age 18 to 24 years old and married?

    P(_____and _____) = _____

3. Use the conditional probability formula (showing your work) to find the probability that a woman is married on the *condition* she was 18 to 24 years old?

P(_____|_____) = _____ = _____

4. What is the probability that a woman chosen is 65 year old or older? P(_____) = _____

5. What is the probability that the woman we choose is married and at least 65 years old?

    P(_____and _____) = _____

6. What is the conditional probability that the woman chosen is married given that she is 65 or older?

    P(_____|_____) = _____ = _____

7.   **Verify** that the probabilities you found in **#4, #5, #6** satisfy the **general multiplication rule**:

                            P(A∩B)= P(B|A) ·P(A)

        where **A** = woman is at least 65 years old   and   **B** = woman is married.

        P(_____∩_____) = P(_____|_____) · P(_____)

8. Are the events **A** = "married" and **B** = "at least 65 years old" **independent**? Justify using statistics.

8. What is the probability that the woman chosen is a widow? P(_____) = _____

9. What is the probability that the woman chosen is a widow and at least 65 years old?

P(_____) = _____

10. Use the conditional probability formula (showing your work) to find the probability that a woman is a widow, given that she is at least 65 years old?

P(_____|_____) = _____ = _____

11. Are the events **A** = "widow" and **B** = "at least 65 years old" **independent**? Justify using statistics.

12. What is the conditional probability that the woman chosen is a widow, given that she is between 25 and 64 years old?

P(_____|_____) = _____ = _____

13. What is the conditional probability that the woman chosen is 18 to 24 years old, given that she is married?

P(_____|_____) = _____ = _____

14. Earlier you found the P(married | age 18 to 24) = 0.241. Complete this sentence:

24.1% is the proportion of women who are _____ among those women who are

_____.

15. In #13 you found P(age 18 to 24 | married). Write a sentence in the form given in #14 that describes the meaning of this result.

_____

_____