

STAT 308 - Handout #7

4.3 Some Rules of Probability

Ex. As reported in *Employment and Earnings*, the age dist'n of employed persons 16 years old and over is

Age	Frequency (000's)	Event
16-19	6,500	A
20-24	12,138	B
25-34	32,077	C
35-44	35,051	D
45-54	25,514	E
55-64	11,739	F
65 & over	3,690	G
Total	126,709	

An employed person is selected at random. Let the following events be defined

- W = the person is between 20 and 64
- Y = the person is under 65
- Z = the person is 55 or over.

Describe each of the following events in words and determine their probabilities.

a. (not Y)

Is the event that the person selected is

$$P(\text{not } Y) =$$

=

=

=

$$P(Y) = ?$$

Could use the

$$P(Y) =$$

$$=$$

$$=$$

b. (not W)

Is the event that the person selected is

$$P(\bar{W}) =$$

$$=$$

$$\text{Since } A \cap G =$$

$$=$$

$$=$$

$$=$$

c. $Y \cap Z$ (same as Y&Z)

Is the event that the person selected is

$$P(Y \cap Z) =$$

$$=$$

$$=$$