6-1 Two-Way Frequency Tables NOTES

85 students were asked if they read for fun or read only for school.

	Reads for Fun (F)	Reads only for School (S)	Total
Boys (B)	10	25	35
Girls (G)	30	20	50
Total	40	45	85

Find the probability that a student selected at random:

P(G) A. is a girl $\frac{50}{85} = \frac{10}{17} = 0.588 = 58.8\%$

P(B) B. is a boy $\frac{35}{85} = \frac{7}{17} = 0.412 = 41.2\%$

P(F) C. reads for fun $\frac{40}{85} = \frac{8}{17} = 0.471 = 47.1\%$

P(S) D. reads only for school $\frac{45}{85} = \frac{9}{17} = 0.529 = 52.9\%$

P(B ∩ F) E. is a boy who reads for fun $\frac{10}{85} = \frac{2}{17} = 0.118 = 11.8\%$

P(G ∩ S) F. is a girl and a also reads only for school $\frac{20}{85} = \frac{4}{17} = 0.235 = 23.5\%$

P(B ∪ F) G. is a boy or a student who reads for fun $35 + 40 - 10 = \frac{65}{85} = \frac{13}{17} = 0.765 = 76.5\%$

P(G ∪ S) H. is a girl or a student who reads only for school $50 + 45 - 20 = \frac{75}{85} = \frac{15}{17} = 0.882 = 88.2\%$

P(F|B) I. reads for fun given that the student selected was a boy $\frac{10}{35}$ $\frac{10}{35} = \frac{2}{7} = 0.286 = 28.6\%$

P(B|F) J. is a boy given that the student selected reads for fun $\frac{10}{40}$ $\frac{10}{40} = \frac{1}{4} = 0.25 = 25\%$

P(S|G) K. reads only for school given that the student selected was a girl $\frac{20}{50}$ $\frac{20}{50} = \frac{2}{5} = 0.4 = 40\%$

Mr. Smith keeps track of his students' homework completion. The following two way frequency table shows the number of boys and girls who are first-time offenders and repeat offenders.

	First-Time Offenders (F)	Repeat Offenders (R)	Total
Boys (B)	12	32	44
Girls (G)	36	10	46
Total	48	42	90

Find the probability that a student selected at random:

P(G) A. is a girl $\frac{46}{90}$ $\frac{23}{45}$ 51.1%

P(B) B. is a boy $\frac{44}{90}$ $\frac{22}{45}$ 48.9%

P(F) C. is a first time offender $\frac{48}{90}$ $\frac{8}{15}$ 53.3%

P(R) D. is a repeat offender $\frac{42}{90}$ $\frac{7}{15}$ 46.7%

P(G ∩ F) E. is a girl who is a first time offender $\frac{36}{90} = \frac{2}{5}$ 40%

P(B ∩ R) F. is a boy and a repeat offender $\frac{32}{90}$ $\frac{16}{45}$ 35.6%

P(B ∪ R) G. is a boy or a repeat offender $44 + 42 - 32$ $\frac{54}{90} = \frac{3}{5}$ 60%

P(G ∪ R) H. is a girl or a repeat offender $46 + 42 - 10$ $\frac{78}{90}$ $\frac{13}{15}$ 86.7%

P(R | B) I. is a repeat offender given that the student selected was a boy $\frac{32}{44}$ 72.7%

P(G | F) J. is a girl given that the student selected was a first-time offender $\frac{36}{48}$ 75%

P(B | F) K. is a boy given that the student selected was a first-time offender $\frac{12}{48} = \frac{1}{4}$ 25%