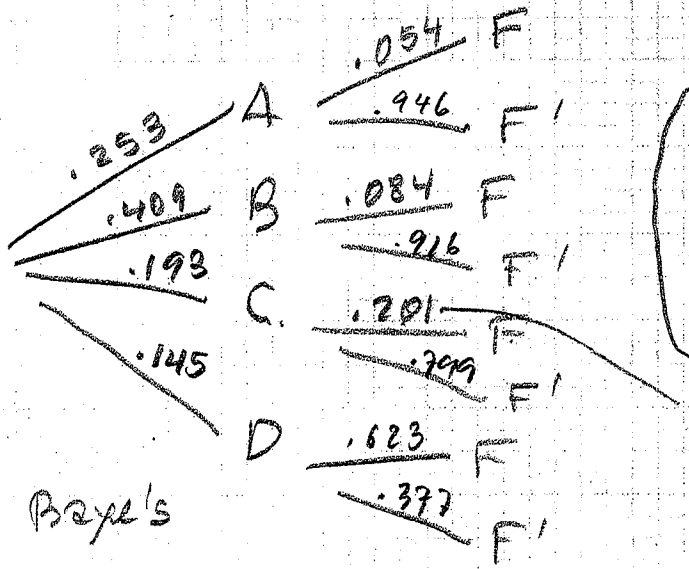
PROBABILITY PROBLEMS #4

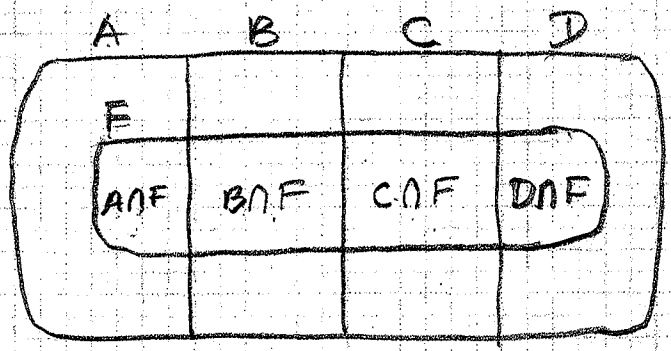
	Teacher Age	Proportion	Proportion of Full Time status	Not Full time
A	20-29	.253	.054	.946
B	30-49	.409	.084	.916
C	50-69	.193	.201	.799
D	> 70	.145	.623	.377
		1	.962 why?	

Questions

1) What is the probability that a randomly selected teacher, who has full time status, is between the ages of 50 and 69?



Bayes's



$P(F|C)$

$$P(C|F) = \frac{P(C \cap F)}{P(F)} = \frac{P(C) * P(F|C)}{P(F)}$$

$$P(A|B) = \frac{P(A \cap B)}{P(B)} \Rightarrow P(A \cap B) = P(B) * P(A|B)$$

$$P(B \cap A) = P(B) * P(A|B)$$

$$P(C|F) = \frac{.193 * .201}{.253 * .054 + .409 * .084 + .193 * .201 + .145 * .623}$$

$$\approx .2189$$