Example 6 (Conditional Part)   Define A and B

A { Young }   1st event

B { Male }   2nd event

B|A { Males that are young }

Get Sample Space

Total Sample Space : $40 + 50 + 60 + 50 = 200$

Sample Space of A : $\{40, 50\} \rightarrow 40 + 50 = 90$

Sample Space of B : $\{40, 60\} \rightarrow 40 + 60 = 100$

Sample Space of B|A : $\{40\} = 40$

↑

Set this up based on the problem

B|A
↓

Get Probability

B∩A
$\{40\}$

$$P(B|A) = \frac{P(B \cap A)}{P(A)} = \frac{P(40)}{9/200} = \frac{40/200}{9/200} = \frac{40}{90} \approx 0.44$$

<u>Example 7</u> (Conditional Part)

<u>Define A and B</u>

A { Math most enjoyable }

B { Female Student }

B|A { Female Student Choose Math as Most Enjoyable}

<u>Get Sample Spaces</u>

Total Sample Space : 178 students = 178

Sample Space of A : 40 students = 40

Sample Space of B : 88 students = 88

Sample Space of B|A : 16 students = 16

$$P(B|A) = \frac{P(B \cap A)}{P(A)} = \frac{16/178}{40/178} = \frac{16}{40} \approx 0.40$$

(B|A ↓ above $P(B \cap A)$)