3 red 4 blue marbles

$P(B|R)$ = probability of Blue Given Red already picked

$$= \frac{4}{6} = \frac{2}{3}$$

P(both in same suit) = P(any card) P(remaining card in 1st card's suit)

$$= \frac{52}{52} \times \frac{12}{51}$$

$$= \frac{12}{51}$$

$P(B)$ = Probability of 1 boy

$P(BB)$ = " 2 boy

$P(BB|B) = ?$

BB BG

GG GB

(dependent event)

$$P(B) = \frac{3}{4} \qquad P(BB) = \frac{1}{4}$$

$$P(BB|B)\,P(B) = P(B|BB) \cdot P(BB)$$

$$P(BB|B) = \frac{P(B|BB) \cdot P(BB)}{P(B)}$$

$$= \frac{1 \times \frac{1}{4}}{\frac{3}{4}}$$

$$= \frac{1}{3}$$