

## PROBABILITY ASSIGNMENT

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## 1 problem

Let A and B be independent events with Pr(A) = 0.3 and Pr(B) = 0.4 Find

- 1. Pr(AB)
- 2. Pr(A + B)
- 3. Pr(A|B)
- 4. Pr(B|A)

## 2 solution

Since A and B are independent events, we have

$$Pr(AB) = Pr(A) Pr(B)$$

1. 
$$Pr(AB) = 0.3 \times 0.4$$

$$\Pr\left(AB\right) = 0.12$$

2. 
$$\Pr(A+B) = \Pr(A) + \Pr(B) - \Pr(AB)$$
  
  $\Pr(A+B) = 0.3 + 0.4 - 0.12 = 0.58$ 

$$Pr(A+B) = 0.3 + 0.4 - 0.12 = 0.58$$

3. 
$$\Pr(A|B) = \frac{0.12}{0.40} = 0.3$$

4. 
$$\Pr(B|A) = \frac{\Pr(B+A)}{\Pr(A)} = \frac{0.12}{0.30} = 0.4$$