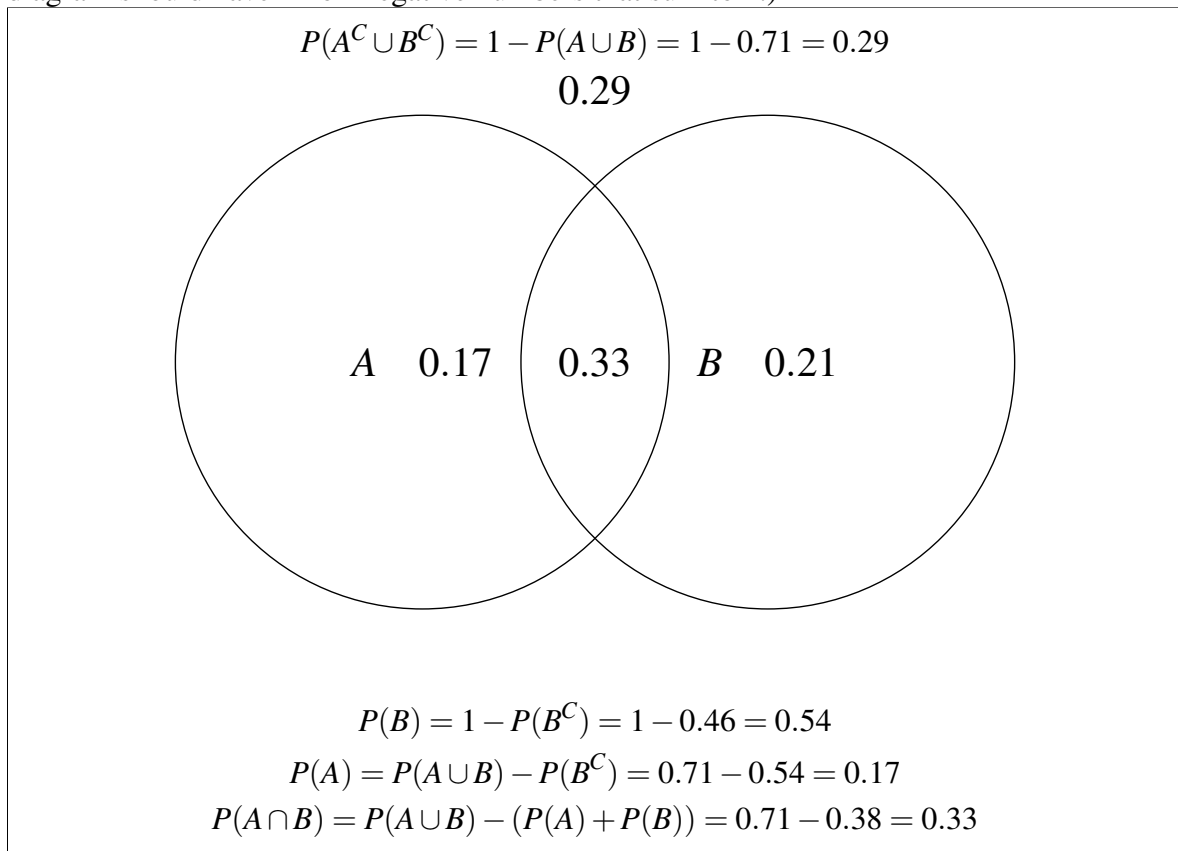


1.

Let  $A$  and  $B$  be events which satisfy:  $P(B \cap A^C) = 0.21$ ,  $P(A \cup B) = 0.71$ , and  $P(B^C) = 0.46$ .

- (a) Sketch and label an appropriate Venn diagram, along with associated probabilities. (Your diagram should have 4 non-negative numbers that sum to 1.)



- (b) Find  $P(A|B)$

$$P(A|B) = \frac{P(A)}{P(B)} P(A \cap B) = \frac{0.17}{0.54} (0.33) \approx \boxed{0.10388}$$

- (c) Find  $P(B|A)$

$$P(B|A) = \frac{P(B)}{P(A)} P(B \cap A) = \frac{0.54}{0.17} (0.33) \approx \boxed{0.10388}$$

- (d) Find  $P(B|A^C)$