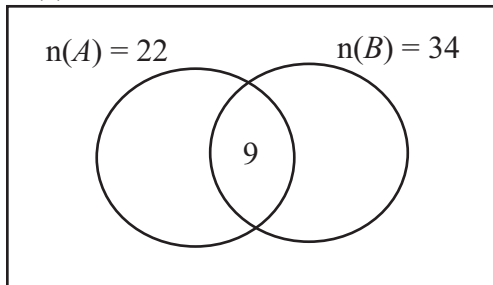


Name: _____

1. (a) Complete the Venn diagram below by stating the number of elements in each region.

$$n(\epsilon) = 50$$



- (b) Find the following probabilities if an element is randomly chosen. Write as fractions in their simplest form.

- (i) $\Pr(A \cap B)$ (ii) $\Pr(A \cup B)$ (iii) $\Pr(B')$

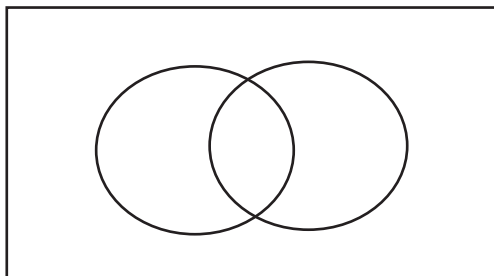
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- (iv) $\Pr(A' \cup B')$ (v) $\Pr(A' \cap B)$ (vi) $\Pr(A)$

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2. 60 travellers in Europe were asked if they could speak French and/or German. 30 of them could speak French, 24 could speak German and 6 of these could speak both languages.

- (a) Complete the Venn diagram below to display this information.

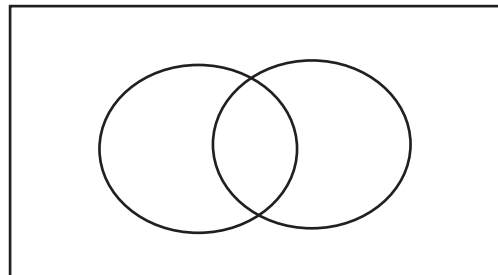


- (b) Based on this information what is the probability of randomly choosing someone who could speak neither French nor German?

Give answer as a fraction in its simplest form.

3. A shop owner noted that of 100 people who came into her shop, 58 bought milk, 36 bought bread and 22 customers did not buy milk or bread.

- (a) Complete the Venn diagram below to display this information.



- (b) Complete the Karnaugh map below to display the information.

- (c) For a customer entering the shop find the following probabilities.

Give answers as fractions in their simplest form.

- (i) $\Pr(\text{they will buy milk but not bread})$

- (ii) $\Pr(\text{they will buy bread but not milk})$

- (iii) $\Pr(\text{they will buy milk and bread})$