Form A

1. (a) A^c = "all letters not vowels" = "consonants"

   (b) $P(A \mid A^c) = 0$

   (c) $P(A \cup B) = 9/26$ (the letters AEIOURNDM)

   (d) $P(A \cap B) = 2/26$ (just the letters AO)

   (e) A, B are not disjoint, since $A \cap B$ is nonempty.

   (f) If A, B were independent, then the multiplication rule would become $P(A \cap B) = P(A)\,P(B)$. But

   $$\left.\begin{aligned} P(A) &= 5/26 \\ P(B) &= 6/26 \end{aligned}\right\} \quad \text{and} \quad \left(\frac{5}{26}\right)\left(\frac{6}{26}\right) \neq \frac{2}{26}.$$

2. (a) range, standard deviation

   (b) range = max − min, and iqr = $q_3 - q_1$ are easily estimated from a boxplot.