1. (1 pt each) Find the following given that

\[ U = \{a, b, c, d, e, f, g, h\} \]
\[ A = \{a, b, d, f\} \]
\[ B = \{c, d, g\} \]
\[ C = \{a, c\} \]
\[ D = \{a, e, f, g, h\} \]

(a) \(A \cup B =\) 
(b) \(A \cap D =\) 
(c) \(\overline{A} =\) 
(d) \(\overline{A} \cup C =\) 
(e) \(\overline{B} \cap D =\) 
(f) \(\overline{A} \cap \overline{B} =\) 
(g) \(C - A =\) 
(h) \(D - A =\) 
(i) \((D - A) \cup (B \cap C) =\) 
(j) \(B \cap (A \cup D) =\) 
(k) \((A \cup C) - B =\) 
(l) \((A \cup C) \cup \overline{B} =\)
2. (2 pts) Use the following Venn Diagram to shade \((A \cup C) \cap \overline{B}\)

![Venn Diagram](image)

3. (2 pts) Given the following sets:

\[
\begin{align*}
U &= \{1, 2, 3, 4, 5, 6, 7, 8, 9, a, b, c, d\} \\
A &= \{2, 4, 6, 7, 8, 9, a\} \\
B &= \{1, 2, 3, 4, 5, 8, 9, d\} \\
C &= \{1, 4, 7, 8, b\}
\end{align*}
\]

Place the elements of these sets in their proper locations on the following Venn Diagram.

![Venn Diagram](image)