

Problem 1. Let $A = [2, 9]$ and $B = (5, 15)$.
Compute the following in interval notation.

(a) $A \cup B$

(b) $A \cap B$

(c) $A \setminus B$

(d) $B \setminus A$

(e) $(A \cup B) \setminus (A \cap B)$

Problem 2. Let A be the domain of $f(x) = \sqrt{x+3}$ and let B be the domain of $g(x) = \sqrt{5-x}$. Compute the following sets in interval notation.

(a) A and B

(b) $A \cup B$

(c) $A \cap B$

(d) $A \setminus B$

(e) $B \setminus A$

Problem 3. Let $f(x) = x^2 - 4x - 21$. The graph of f is a parabola.

- (a) Find the x and y intercepts of f .
- (b) Find the vertex of f .
- (c) Find the domain and range of f . Write them in interval notation.
- (d) Solve the inequality $f(x) \leq 0$. Write the solution in interval notation.
- (e) Solve the inequality $f(x) \leq 15$. Write the solution in interval notation.