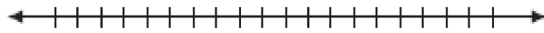


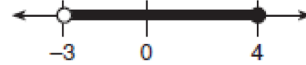
Exam 4 (Sets and Inequalities) Review Sheet

1. Solve and graph the solution set of: $5 - 3x < 13 + x$

2. The manufacturer of Ron's car recommends that the tire pressure be at least 26 pounds per square inch and less than 35 pounds per square inch. On the accompanying number line, graph the inequality that represents the recommended tire pressure.



3. Which inequality is represented in the accompanying graph?



- (1) $-3 \leq x < 4$ (3) $-3 < x < 4$
 (2) $-3 \leq x \leq 4$ (4) $-3 < x \leq 4$

4. Given: Set $U = \{S, O, P, H, I, A\}$
 Set $B = \{A, I, O\}$

If set B is a subset of set U , what is the complement of set B ?

5. If the universal set is {apples, oranges, pears, bananas, strawberries}, then what is the complement of the set {oranges, strawberries, apples}?

6. Given $A = \{5, 7, 9\}$, $B = \{6, 8, 10\}$, $C = \{1, 2, 3, 4, 5\}$, and $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, find:

- a. $A \cap C$ b. $A \cup B$ c. $A \cap B$ d. C' e. \bar{A}

7. Write an inequality to represent "Nine less than four times a number exceeds 15."

8. Use interval notation to represent the set of all real numbers that:

- a. are greater than -5
 b. have a maximum value of 7
 c. are at most 4
 d. are greater than 2 and less than or equal to 10
 e. are at least 8 or less than 1

9. Which notation describes $\{1, 2, 3\}$?

- (1) $\{x | 1 \leq x < 3, \text{ where } x \text{ is an integer}\}$ (3) $\{x | 1 < x < 3, \text{ where } x \text{ is an integer}\}$
 (2) $\{x | 0 < x \leq 3, \text{ where } x \text{ is an integer}\}$ (4) $\{x | 0 \leq x \leq 3, \text{ where } x \text{ is an integer}\}$

10. Solve algebraically:

Thelma and Laura start a lawn-mowing business and buy a lawnmower for \$225. They plan to charge \$15 to mow one lawn. What is the *minimum* number of lawns they need to mow if they wish to earn a profit of *at least* \$750?

11. Solve, graph, and state the solution set using interval notation:

- a. $(2x - 5 \geq 7) \vee (-3x - 1 > 8)$ b. $1 < 2x - 7 < 7$

12. Use the Venn Diagram on the right to find each set:

- a. $A \cap B \cap C$ b. $B \cap C$ c. $A \cup B$
 d. $A \cap B$ e. $B \cap \{1, 3, 5, 7, 9\}$ f. $\{5, 6, 7\} \cup A$

