

NAME: _____ Score _____/10

Please **print** your name

1. **T** **F** The empty set \emptyset is a subset of every set.
2. **T** **F** Squaring both sides of the equation $\sqrt{x+2} + \sqrt{3x-1} = 2$ produces $(x+2) + (3x-1) = 4$
3. **T** **F** Every set is a subset of itself.
4. **T** **F** $(x-y)^2 = x^2 - y^2$.
5. Two equations are **equivalent** if they have the same solution sets.
6. Square the expression $\sqrt{x} + \sqrt{y}$

$$(\sqrt{x} + \sqrt{y})^2 = x + 2\sqrt{x}\sqrt{y} + y = x + y + 2\sqrt{xy}$$

7. List all the subsets of the set $\{d, k\}$. **Write them as sets.**

$$\emptyset, \{d\}, \{k\}, \{d, k\}$$

8. What is the relation between the solution sets of the two equations

$$\sqrt{x^2 + 5} = x - 3 \text{ and } x^2 + 5 = x^2 - 6x + 9.$$

The solution set of the second equation contains the solution set of the first equation.

9. Compute $(3x + 5)^2 = 9x^2 + 30x + 25$

10. Factor completely $9x^2 - 16 = (3x - 4)(3x + 4)$