

NAME: _____ Score _____/100

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SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION

Circle T or F, whichever is correct.

Questions 1 -22 are 3 pts. each. Questions 23 – 29 are 5 pts. each.

1. T F the norm of a complex number is a real number.
2. T F $\{x \mid 2 < x < 7\} = \{2, 7\}$
3. T F 3 is a solution of $x^3 + x^2 - 2x = 30$
4. T F If $2x^2 - 5$ is added to both sides of an equation, the resulting equation is equivalent to the original.
5. T F A formula must be an equation.

Circle the symbol for the smallest set of numbers which contains the number given at the left.

The Symbols are standard: **R** is the real numbers, **F** is the irrational numbers, **Q** is the rational numbers, **Z** is the integers, **W** is the whole numbers, and **N** is the natural numbers.

6. The smallest set which contains $-3 + \sqrt{8}$ is **R F Q Z W N**
7. The smallest set which contains $\frac{14}{5}$ is **R F Q Z W N**
8. The smallest set which contains 43 is **R F Q Z W N**
9. The formula for the area of a triangle with base b and height h is _____
10. The distance d between two points (x_1, y_1) and (x_2, y_2) is given by the formula:
11. Sketch the graph of $\{x \mid 1 < x \leq 6\}$
12. Write $\{x \mid 1 < x \leq 6\}$ in interval notation.
13. The multiplicative inverse of a complex number is its _____ divided by its _____.
14. A linear equation in one variable is an equation that can be written in the form _____ where a and b are real numbers with a not zero.

15. Two equations are _____ if they have the same solution set.
16. A number that makes an equation _____ when substituted for the variable is called a solution of the equation.
17. Calculate the product $(2 - 3i)(1 + 5i)$
18. The solution set for an equation in one variable is $\{-2, 0, 3, 4\}$. Sketch the graph of that equation.
19. Write the compact compound inequality which is equivalent to $|2x + 7| < 5$.
20. Complete the statement of the Transitive Property.
If a , b , and c are real numbers such that $a = b$ and $b = c$, then _____
21. Complete the statement of the Law of Trichotomy.
If a and b are real numbers then exactly one of the following is true
- i. _____
 - ii. _____
 - iii. _____
22. If the solution set of $|ax + b| < c$ is the interval (h, k) then
_____ is the set solution of the equation $|ax + b| = c$ and
_____ is the solution set of the inequality $|ax + b| > c$.

23. Consider the complex number $2 - 7i$.

a. What is its complex component? _____

b. What is its conjugate? _____

c. What is its opposite? _____

d. What is its norm? _____

e. What is its multiplicative inverse? _____

f.

24. Solve $S = P + Prt$ for P

25. Use the quadratic formula to solve $x^2 + 5x + 3 = 0$

26. Solve the inequality $|3x - 5| > 4$

27. Solve the equation $\sqrt{3x-1} = x+2$

28. Solve the equation $x^2 = 5x - 6$

29. Solve the equation $\frac{x}{x-3} = \frac{3}{x-3} + 9$