Name_____
Due Date_____
Block_____

Algebra 2/Trig Review #7

Complete on a separate piece of paper.

List 2 sets to which each number belongs:

1. -5	2. $\frac{\pi}{\pi}$	3. $27^{\frac{1}{3}}$	4. $\sqrt[4]{5}$
5. $0.\overline{998}$	6. $\log_4 16$	7. $9\left(3\left(5-3\left(8\left(5+999\right)^2\right)\right)\right)$	8. 8

Name the field axiom being described:

9. Any integer plus any integer is another integer.
10. 5 bags that each contain 2 oranges and 3 apples is the same as 10 oranges and 15 apples.

Explain:

11. Explain why $\log_b a^n = n\log_b a$

Simplify:

12. $4-\left(x+3\left(x-9\right)^2\right)$

Find the first 12 terms of the sequence:

13. $a_n = a_{n-1} + \frac{1}{2}$, for n ≥ 2, $a_1 = 4$

Find the 200th term of each sequence:

14. $-1,-5,-9,-13,...$

Write a recursive formula to describe the sequence:

15. $5,3,2,1,1,0,-1,1,-2,...$

Graph using the slope and y-intercept:

16. $3x+5y=15$

17. Determine the equation of the line that goes through $(2,-5)$ and is perpendicular to the line whose equation is: $-4x-2y=88$

Write in standard form:

18. $y=\frac{-3}{2}(x)+7$

19. Solve the following system using substitution. Then solve the system using elimination. Finally, verify your solution by graphing:

$5x+6y=2$

$x+y=4$

20. Graph the following system:

$y \le 5x-3$

$x>8$

21. Let $y=3x^2-18x+24$. Write in vertex form, find the roots and y-intercept of the function, then graph the function.

Simplify. Write your answer as a rational expression with no negative exponents.

22. $\left(\sqrt[3]{27x^8y^{12}z^3}\right)^2$

Use logarithms to solve:

23. $4^x-3=10$

Use the laws of logarithms to simplify:

24. $\log_3 3^{199}-\log_3 81^{40}+\log_3 3$

Factor completely:

25. $6x^3-x^2-21x+10$

26. Let $f(x)=3x+1$ and $g(x)=x^2+1$. Find $g(f(x))$.

Solve:

27. $\frac{x-1}{x+2}+\frac{x+3}{x-1}=\frac{10x+2}{x^2+x-2}$