Summer Worksheet for Pre-Calculus Name _____

***These problems will be used as a pre-assessment. They will not be graded for accuracy, but will be graded on completion. This will give your teacher a baseline for where YOU are at before the class begins. There is no need to copy answers from someone else. Your teacher wants to see what you know, not what someone else knows.*

This needs to be completed by your first day of class next August!

1. **Find the place value** of the 2 in the number 7,342,549

2. **Simplify**. (-3)(-5) - (4)(.5) + -6

3. **List** all the elements of the set $\left\{-3, .203, \frac{-2}{5}, 0, 6, 3\pi\right\}$

A .Natural Numbers

B. Integers

C. Rational Numbers

4. **Average**. $\frac{15}{2}$ *and* $\frac{17}{4}$

5. **Divide**. $3\frac{2}{5} \div \frac{10}{3}$

6. **Simplify**. $|3-15| \cdot (-4) \div (-16)$

7. **Simplify**. $-2\frac{1}{3} + .125$

8. **Find the equation of the line** that passes through the points (-2,3) and (1,2)

9. **Determine the slope and y-intercept** $3x + 2y = 12$

10. **Solve the inequality.** $\frac{2}{3}(x-6) \le \frac{1}{2}(3x-1)$

11. **Simplify.** $\left(-2x^3y^{-1}\right)^{-1}\left(3x^{-2}y^{-2}\right)^3$

12. **Perform the operation.** $\left(x^2-2x+3\right)\left(2x^2+x-1\right)$

13. **Simplify.** $4x - (x+1)^2$

14. **Simplify.** $3(x^2y - 2x + y^2) - 2(4yx^2 + 3y + y^2) + 4(5 - x)$

15. **Factor completely.** $2x^3 - x^2 - 8x + 4$

16. **Factor completely.** $6x^4 - 50y^6$

17. **Simplify.** $\frac{4}{\sqrt{3}}$

18. **Simplify.** $\frac{1+\sqrt{2}}{3-\sqrt{2}}$

19. **Solve for x.** $\frac{2x-1}{3} = \frac{5x+7}{4}$

20. **Set up and solve a linear system to determine the solution to the problem.** The perimeter of a desk is 28 feet. If the width is 2 feet less than the length, find the dimensions of the desk.

21. **Solve the system of equations.** $3x - 4y = -5 \quad 5x - 3y = -1$

22. **Simplify.** $\left(3x^4 - 9x^3 + 6x^2\right) \div \left(9x^2\right)$

23. **Factor completely.** $27x^9 + 64m^6$

24. **Divide by long division.** $\left(x^3 - 3x + 1\right) \div \left(x - 2\right)$

25. **Set up equation. Solve and show all work!**
Tom and Judy mix two kinds of feed for pedigreed dogs. They wish to make 54 pounds of feed worth \$0.28 per pound by mixing one kind worth \$0.24 per pound with another worth \$0.42 per pound. How many pounds of each kind should thy use?

26. **Solve for a.** $\frac{1}{a}-\frac{1}{b}=\frac{1}{c}$

27. **Give the values of x for which the expression is undefined.** $\frac{x}{(x+3)(x-1)}$