Summer Worksheet for Pre-Calculus Name _____

***These problems will be collected on the first day of class and used as a pre-assessment. They will not be graded for accuracy, but will be graded on completion. You may need to refer to YouTube videos if you forgot a topic. There will be an assessment over some of these topics the second day of class.*

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**. $18x^4 - 50y^6$

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.** $3x - 4y = -5 \qquad 5x - 3y = -1$

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.** $\frac{x}{(x+3)(x-1)}$