NAME_____
AP CALCULUS SUMMER ASSIGNMENT 2019

DIRECTIONS: Each part must be completed separately on looseleaf. All work should be shown and done in a neat and precise manner. These assignments will be graded and you will have a test within the first two weeks of school in September. You are responsible to memorize the formulas and definitions. Any questions, email Mrs. Horiha. (chorihan@moorechs.org)

PART ONE: Solve for x by factoring. Complete all work on looseleaf and check your results.

1. $x^2 – 7x = 2x + 10$
2. $x^3 – 5x^2 – 4x + 20 = 0$
3. $7x^2 – 13x = 2$
4. $x^4 = 121$
5. $5x^2 - x = 4$
6. $10x(x- 2) = x(x – 1) -13x -1$
7. $9x^2 – 2 = 0$
8. $¼ x^2 – x + 1 = 0$
9. $7x^2 – 16x + 4 = 0$
10. $x^4 – 10x^2 + 9 = 0$

PART TWO: Solve algebraically and check.

1. $e^{3x- 1} – 2 = -1$
2. $25^{x -2} = 125^{x + 3}$
3. $64^{2x} = 32^{x + 4}$
4. $\frac{3x-2}{x+2}=0$
5. If $2x^2 – yx = 4$ and $x = -1$ find the value of y.
6. $4x^{½} – 2 = 3$
7. $2x^{-4} + 1 = 33$
8. $5 – (x – 2) - ½ (4 + 2x) = x – 1$

9. $\log_3 4 + \log_3 (x + 2) = 3$
10. $\log_a 10 + \log_a (x + 1) = \log_a 5$

PART FOUR: Show all work on looseleaf.

1. Write the equation of the line perpendicular to 3y -x = 2 and passing through (3, -10)

2. Write the equation of the line normal to 4y – 2x = 1 and passing through (-1, 11)

3. Write the equation of the line passing through the points (2, 4) and (-7, 15)

4. Write the equation of the circle with radius 12 and having the center (2, 1) in two different forms.

5. Write the equation of the circle where the endpoints of the diameter are (2, 1) and (-6, 7)

6. Find the exact values of the following:

   a. sin 150° b. cos 330° c. tan $\frac{5\pi}{4}$ d. csc (– 480°) 5. sec ($\frac{7\pi}{6}$)

7. Find the x -intercepts and y -intercepts of the following in ordered pair form.

   a. $y = x^2 – 6x – 16$ b. $4x^2 + 5y^2 = 20$ c. $x = y^2 – 2y – 3$

8. Find in terms of π the volume of a sphere that has a diameter of 40 inches.

9. Find to the nearest tenth the surface area of a sphere that has a radius of ¼

10. Find to the nearest hundredth the volume of a right cylinder with a height of 4 inches and diameter of 5 inches.

11. If the area of the great circle of a sphere is 144 π , find the volume and surface area of the sphere in terms of π .
12. Find to the nearest tenth the diameter of a sphere that has a volume of 566 cubic feet.

PART FIVE: Show all work on looseleaf.

1. If $f(x) = x^2 – 2x + 1$ and $g(x) = 3x – 3$ find the following and simplify completely.

   a. f(g(x)) b. g(f(x)) c. f(x)/g(x) ; $x \neq 1$ d. g(x) – f(x)

2. If $\sin x = \frac{4}{5}$ find the exact value of cos(2x) where x is a positive acute angle.

3. Find the exact value of sin(15°).

4. Find the exact value of the cos (45°)

5. If the sin A = ½ and angle A lies in quadrant II, find the exact value of the following:

   a. cos (2A) b. tan (2A) c. sin (2A)

6. Simplify completely the following:

   a. $4\sin^2 A + 4\cos^2 A$

   b. $\sqrt{x^2 - 6x + 9}$

7. Find the amplitude, frequency and period of y = -3cos(4x)

8. Sketch the graph of y = 4sinx from $-\pi \leq x \leq \pi$