AP Calculus Summer Assignment

These topics will be tested the day after you get back from Summer Break. Be prepared.

Solve the following equations for x. *(No calculator allowed and show all work)*

1. $5\ln(x-2)-2=28$	2. $e^{x-3}+4=20$	3. $\frac{3}{x-4}-\frac{2}{3x}=0$
4. $\tan x-3=-4$; $0<x<\pi$	5. $\frac{1}{4}\sin^3 x\cos x=0$; $0\le x\le\pi$	6. $x^2-3x=5$

Simplify the following expressions.

7. $\frac{x^2-4x-5}{x^2-25}$	8. $\frac{4}{x}-\frac{5x}{x-3}+x^3$	9. $\frac{\tan x\cos x}{\csc x}$	10. $8^{-4/3}$	11. $(\sqrt[6]{27})^4$

Write the equation of a line given the following information.

12. (3,5) and (-2,25)	13. (3,5) and (3,-3)	14. m = 1/3 and (2,3)

Sketch the two equations on the same coordinate plane, then label the points of intersection, and x & y-intercepts.

15. $y=x+1$ and $y=4+3x-x^2$

Use the unit circle to find the values of problems 16-18.

16. $\sin\frac{3\pi}{2}$	17. $\cos\frac{11\pi}{6}$	18. $\tan\frac{\pi}{6}$

19. $f(x)=x^2-2x$, $g(x)=3x+4$, $h(x)=f(g(x))$

a) What is the value of h(3)? b) What is the $h(x)-g(x)$?

20. Sketch the following parent graphs.

a) $y=x$ b) $y=x^2$ c) $y=x^3$ d) $y=\sqrt{x}$ e) $y=|x|$

f) $y=\frac{1}{x}$ g) $y=e^x$ h) $y=\sin x$ i) $y=\cos x$ j) $y=\tan x$

21. Find the following limits: a) $\lim_{x\to 2} x^2-4$ b) $\lim_{x\to 3}\frac{x^2-9}{x-3}$

Answers

1. e^6+2	2. $\ln(16)+3$	3. $\frac{-8}{7}$	4. $\frac{3\pi}{4}$
5. $0,\frac{\pi}{2},\pi$	6. $\frac{3\pm\sqrt{29}}{2}$	7. $\frac{x+1}{x+5}$	8. $\frac{x^5-3x^4-5x^2+4x-12}{x(x-3)}$
9. $\sin^2 x$	10. $\frac{1}{16}$	11. 9	12. $y=-4x+17$
13. $x=3$	14. $y=\frac{1}{3}x+\frac{7}{3}$	15. x-int (-1,0) & (4,0) y-int (0,1) & (0,4) intersection points (-1,0) & (3,4)	
16. -1	17. $\frac{\sqrt{3}}{2}$	18. $\frac{\sqrt{3}}{3}$	19. a) 143 b) $9x^2+15x+4$
20. Use your graphing calculator to check answers		21. a) 0 b) 6	

You must also check out a Calculus textbook from the library to do the following assignments over summer. They are due the 1st day of school. Do odd problems for all of the assignments and you must show your work. p.8(1-11,19-23,61-67), p.16(1-17,23-39,49-55,59), p.27(3-7,13-17,25-27)