

AP Calculus Summer Assignment Practice

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

Solve the following equations for x.

1a) $2 \log_3(x-2) - 4 = 0$ 1b) $\log(3-x)^2 + 1 = 3$	2a) $3(2)^{2x+1} - 4 = 8$ 2b) $5(e)^{x-6} + 2 = 27$	3a) $\frac{1}{x+2} - 2 = \frac{3}{x}$ 3b) $\frac{2}{x} - 1 = \frac{3x}{2x-1}$
4a) $\cot^2 x = 3; 0 < x < 2\pi$ 4b) $-8 \cos x = 4; 0 < x < \pi$	5a) $2 \sec x \cos^2 x = -\sqrt{3}; 0 \leq x \leq 2\pi$ 5b) $-3 \tan x \csc^2 x = 0; 0 \leq x \leq \pi$	6a) $2x - x^2 = x - 3$ 6b) $x - 2x^2 = 4x - 4$

Simplify the following expressions.

7a) $\frac{6x^2 + 17x + 5}{25 - 4x^2}$ 7b) $\frac{3x^2 - 6x}{4 - x^2}$	8a) $\frac{x}{x+1} - \frac{1}{x-2} + 2$ 8b) $\frac{2}{3} - \frac{x}{x+2} + \frac{1}{3x+6}$	9a) $\frac{\cot x \sin x}{\sec^2 x}$ 9b) $\frac{\cos x \sin^2 x}{\tan^2 x}$	10a) $81^{-3/2}$ 10b) $100^{5/2}$	11a) $(\sqrt[4]{16})^3$ 11b) $(\sqrt[3]{-8})^{-2}$
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Write the equation of a line given the following information.

12a) (-3,4) and (2,-6) 12b) (1,5) and (-2,-4)	13a) (2,-3) and (4,-3) 13b) (-2,5) and (-4,5)	14a) m = -3/4 and (8,-6) 14b) m = 3 and (1,-4)
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Sketch the two equations on the same coordinate plane, then label the points of intersection, and x & y-intercepts.

15a) $y = 2x + 1$ and $y = 9 - x^2$	15b) $y = 5x + 1$ and $y = x^2 + 4x - 5$
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Use the unit circle to find the values of problems 16-18.

16a) $\sec\left(-\frac{3\pi}{4}\right)$	16b) $\cot(\pi)$	17a) $\csc\left(\frac{\pi}{4}\right)$	17b) $\cos\left(-\frac{2\pi}{3}\right)$	18a) $\cot\left(\frac{2\pi}{3}\right)$	18b) $\tan\left(\frac{5\pi}{6}\right)$
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19. $f(x) = x^2 - 3x$, $g(x) = 5 - x$, $h(x) = f(g(x))$ a) What is the value of $h(-2)$ and $2f(-1) - 5$?	b) What is $h(x) - f(x)$ and $3g(x) - h(x) + 2$?
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20. Find the following limits: a) $\lim_{x \rightarrow -2} 3x^2 - 4x$	b) $\lim_{x \rightarrow -3} \frac{x^2 + 5x + 6}{3x + 9}$	c) $\lim_{x \rightarrow 4^-} \frac{3}{x - 4}$	d) $\lim_{x \rightarrow 4^+} \frac{x^2 - 16}{4 - x}$
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