

Name: _____

AP Worksheet #2
End of Chapter 1
(No Calculator)
Due: 9/23/2008

Work must support your
answers. No exceptions.
This is just an answer sheet!

Grading:

100% = All 12 correct	78% = 8 correct	60% = 4.5 correct
95% = 11 correct	75% = 7.5 correct	55% = 4 correct
90% = 10.5 correct	72% = 7 correct	50% = 3.5 correct
88% = 10 correct	70% = 6.5 correct	45% = 3 correct
85% = 9.5 correct	68% = 6 correct	40% = 2.5 correct
82% = 9 correct	65% = 5.5 correct	35% = 2 correct
80% = 8.5 correct	62% = 5 correct	30% = 1.5 correct

- If the function f is continuous for all real numbers and if $f(x) = \frac{x^2 - 7x + 12}{x - 4}$ where $x \neq 4$, then $f(4) = \underline{\hspace{2cm}}$.
- If $f(x) = \frac{5}{x^2 + 1}$ and $g(x) = 3x$, then $g(f(2)) = \underline{\hspace{2cm}}$.
- The equation $y = 2 - 3 \sin \frac{\pi}{4}(x - 1)$ has a fundamental period of $\underline{\hspace{2cm}}$.
- Find: $\lim_{x \rightarrow 0} \frac{\sin x \cos x - \sin x}{x^2} = \underline{\hspace{2cm}}$.
- The domain of the function $f(x) = \sqrt{4 - x^2}$ is $\underline{\hspace{2cm}}$.
- Find: $\lim_{x \rightarrow 5} \frac{x^2 - 25}{x - 5} = \underline{\hspace{2cm}}$.
- Find k so that $f(x) = \begin{cases} \frac{x^2 - 16}{x - 4}; & x \neq 4 \\ k & ; x = 4 \end{cases}$ is continuous for all x . $k = \underline{\hspace{2cm}}$.
- Find: $\lim_{x \rightarrow 0} \frac{\tan^3(2x)}{x^3} = \underline{\hspace{2cm}}$.
- Find: $\lim_{x \rightarrow \frac{\pi}{4}} \frac{\cos x}{x - \frac{\pi}{4}} = \underline{\hspace{2cm}}$.
- If the function $f(x)$ is continuous $= \begin{cases} ax^2 - 6x; & \text{if } x \leq 1 \\ -24x^2 + 4; & \text{if } x > 1 \end{cases}$ then $a = \underline{\hspace{2cm}}$.

11. If the graph of $f(x) = x^3 + x + c$ has exactly one x -intercept, then it follows that (Give a reason to support your choice)
- (a) c must be negative.
 - (b) c must equal zero.
 - (c) c must equal -2 .
 - (d) c must be positive.
 - (e) c can be any real number.

12. Which of the following functions is not everywhere continuous? Justify your decision.

- (a) $y = |x|$
- (b) $y = \frac{x}{x^2 + 1}$
- (c) $y = \sqrt{x^2 + 8}$
- (d) $y = x^{2/3}$
- (e) $y = \frac{4}{(x+1)^2}$