AP Calculus
Multiple Choice Monday #1

Name: ______________________
Date: ________________ Per: ____

Problem	**Section Name**
1. Find the second derivative of $x^2y = 2$. (A) $\frac{6y}{x^2}$ (B) $\frac{x^2}{y}$ (C) $\frac{y}{x^2}$ (D) $-\frac{6y}{x^2}$ (E) $-\frac{x^2}{6y}$	
2. If $\frac{dy}{dx} = -x\cos(x^2)$ and $y = 2$ when $x = 0$, then a solution to the differential equation is (A) $y = -\frac{1}{2}\sin(x^2)$ (B) $y = -\frac{1}{2}(\cos x)^2 + 2$ (C) $y = -\frac{1}{2}(\sin x)^2 + 2$ (D) $y = -\frac{1}{2}\cos(x^2) + 2$ (E) $y = -\frac{1}{2}\sin(x^2) + 2$	
3. $\lim_{h\to 0}\frac{2x^2+4xh+2h^2-2x^2}{h}$ (A) 4 (B) $3x^2$ (C) $2x^2$ (D) $4x$ (E) $6x$	
4. $\int 18x^2\sec^2(3x^3)\,dx =$ (A) $2\tan^2(3x^3) + C$ (B) $2\cot^2(3x^3) + C$ (C) $\cot(3x^3) + C$ (D) $\tan(3x^3) + C$ (E) $2\tan(3x^3) + C$	

5. Find $\frac{dy}{dx}$ if $2y^2 - 6y = x^4 + 2x^3 - 2x - 5$ at $(1,1)$

(A) -1 (B) -2 (C) -3 (D) -4 (E) -5

6. Is the function $f(x) = \begin{cases} x^3 - 3, & x < 3 \\ 2x + 7, & x \geq 3 \end{cases}$ continuous at $x = 3$? If not, what is the discontinuity?

(A) The function is continuous (B) Point (C) Essential (D) Jump (E) Removable

*7. $\int_0^{\frac{\pi}{4}} \sin x \, dx + \int_{-\frac{\pi}{4}}^{0} \cos x \, dx =$

(A) $-\sqrt{2}$ (B) -1 (C) 0 (D) 1 (E) $\sqrt{2}$

*8. If $f(x) = 3x^2 - x$ and $g(x) = f^{-1}(x)$, then $g'(10)$ could be

(A) 59 (B) $\frac{1}{59}$ (C) $\frac{1}{10}$ (D) 11 (E) $\frac{1}{11}$

*9. The graph of $y = x^3 - 2x^2 - 5x + 2$ has a local minimum at

(A) $(2.120, 0)$ (B) $(2.120, -8.061)$ (C) $(-0.786, 0)$ (D) $(-0.786, 4.209)$ (E) $(0.666, -1.926)$