Name_____AP Calc PR 2 Review DATE_____ Time Limit 10 minutes

Question 1 Definite Integral

$\int_0^{\frac{1}{2}} \frac{2}{\sqrt{1-x^2}}\,dx =$

(A) $\frac{\pi}{6}$ (B) $\frac{\pi}{3}$ (C) $-\frac{\pi}{3}$ (D) $\frac{2\pi}{3}$ (E) $-\frac{2\pi}{3}$

Question 2: Mean Value Theorem for Derivatives

Find a positive value $c$, for $x$, that satisfies the conclusion of the Mean Value Theorem for Derivatives for $f(x) = 3x^2 - 5x + 1$ on the interval [2, 5].

(A) 1

(B) $\frac{13}{6}$

(C) $\frac{11}{6}$

(D) $\frac{23}{6}$

(E) $\frac{7}{2}$

Question 3: Absolute Maximum

Given $f(x) = 2x^2 - 7x - 10$, find the absolute maximum of $f(x)$ on $[-1, 3]$.

(A) $-1$

(B) $\frac{7}{4}$

(C) $-13$

(D) $-\frac{129}{8}$

(E) 0

Question 4: Solving Differential Equations

Find $\frac{dy}{dx}$ if $x^3y + xy^3 = -10$.

(A) $(3x^2 + 3xy^2)$

(B) $-(3x^2 + 3xy^2)$

(C) $\frac{(3x^2y+y^3)}{(3xy^2+x^3)}$

(D) $-\frac{(3x^2y+y^3)}{(3xy^2+x^3)}$

(E) $-\frac{(x^2y+y^3)}{(xy^2+x^3)}$

Question 5: Derivative of a Radical function

If $f(x) = \sqrt{1+\sqrt{x}}$ find $f'(x)$.

(A) $\frac{-1}{4\sqrt{x}\sqrt{1+\sqrt{x}}}$

(B) $\frac{1}{2\sqrt{x}\sqrt{1+\sqrt{x}}}$

(C) $\frac{1}{4\sqrt{1+\sqrt{x}}}$

(D) $\frac{1}{4\sqrt{x}\sqrt{1+\sqrt{x}}}$

(E) $\frac{-1}{2\sqrt{x}\sqrt{1+\sqrt{x}}}$