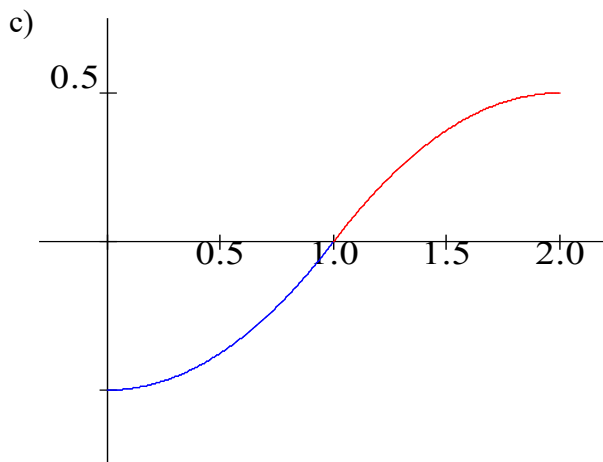


AP CALCULUS PROBLEM SET 9 ANSWER KEY

1. a) $f'(x) = \begin{cases} x & 0 < x < 1 \\ -x+2 & 1 \leq x < 2 \end{cases}$

b) $f(x) = \begin{cases} \frac{x^2}{2} - \frac{1}{2} & 0 < x < 1 \\ -\frac{x^2}{2} + 2x - \frac{3}{2} & 1 \leq x < 2 \end{cases}$



2. $f(x) = \frac{4}{9}(x+5)^{3/2} - x - 6$

3. $f(x) = 4x^3 - 3x^2 + 10$

4. a) $f(x) = x^3 + 4x^2 + 3x - 2$

b) $-\frac{2}{3}$

5. a) $f'(x) = 0$ at $x = 4$
 f has a relative max @ $x = 4$

b) f is concave down on $0 < x < 6$.

c) $f(x) = 3 - \frac{2}{x^2} + \frac{1}{x}$

6. a) f is continuous at $x = 3$

$$\lim_{x \rightarrow 3} f(x) = f(3)$$

b) $\frac{1}{5} \int_0^5 f(x) dx = \frac{4}{3}$

c) $m = \frac{2}{5}, k = \frac{8}{5}$

7. a) A

b) $\frac{A}{2}$

c) $k = 4$