

Timed Activity : 14 minutes

1993 AP Calculus AB: Section I

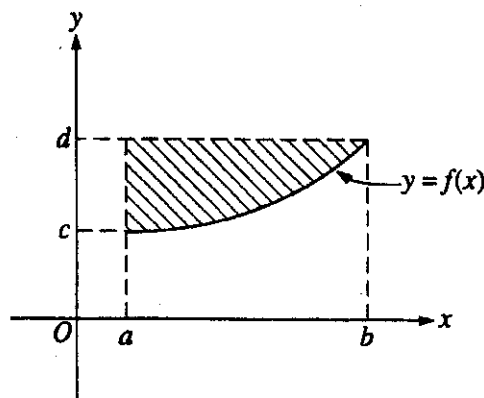
~~90 Minutes - Scientific Calculator~~

Notes: (1) The exact numerical value of the correct answer does not always appear among the choices given. When this happens, select from among the choices the number that best approximates the exact numerical value.

(2) Unless otherwise specified, the domain of a function f is assumed to be the set of all real numbers x for which $f(x)$ is a real number.

1. If $f(x) = x^{\frac{3}{2}}$, then $f'(4) =$

- (A) -6 (B) -3 (C) 3 (D) 6 (E) 8



2. Which of the following represents the area of the shaded region in the figure above?

- (A) $\int_c^d f(y)dy$ (B) $\int_a^b (d - f(x))dx$ (C) $f'(b) - f'(a)$
(D) $(b - a)[f(b) - f(a)]$ (E) $(d - c)[f(b) - f(a)]$

3. $\lim_{n \rightarrow \infty} \frac{3n^3 - 5n}{n^3 - 2n^2 + 1}$ is

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

4. If $x^3 + 3xy + 2y^3 = 17$, then in terms of x and y , $\frac{dy}{dx} =$

(A) $-\frac{x^2 + y}{x + 2y^2}$

(B) $-\frac{x^2 + y}{x + y^2}$

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

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

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

5. If the function f is continuous for all real numbers and if $f(x) = \frac{x^2 - 4}{x + 2}$ when $x \neq -2$, then $f(-2) =$

(A) -4

(B) -2

(C) -1

(D) 0

(E) 2

6. The area of the region enclosed by the curve $y = \frac{1}{x-1}$, the x -axis, and the lines $x = 3$ and $x = 4$ is

(A) $\frac{5}{36}$

(B) $\ln \frac{2}{3}$

(C) $\ln \frac{4}{3}$

(D) $\ln \frac{3}{2}$

(E) $\ln 6$

7. An equation of the line tangent to the graph of $y = \frac{2x+3}{3x-2}$ at the point $(1, 5)$ is

(A) $13x - y = 8$

(B) $13x + y = 18$

(C) $x - 13y = 64$

(D) $x + 13y = 66$

(E) $-2x + 3y = 13$