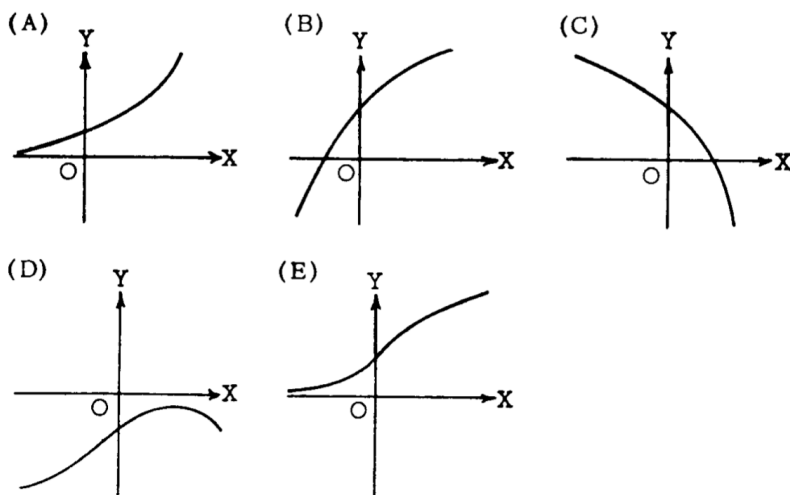


Review 1  
AP Calc AB - 69

3. If  $\begin{cases} f(x) = \frac{\sqrt{2x+5} - \sqrt{x+7}}{x-2}, & \text{for } x \neq 2, \\ f(2) = k \end{cases}$  and if  $f$  is continuous at  $x = 2$ , then  $k =$
- (A) 0            (B)  $\frac{1}{6}$             (C)  $\frac{1}{3}$             (D) 1            (E)  $\frac{7}{5}$
5. If  $3x^2 + 2xy + y^2 = 2$ , then the value of  $\frac{dy}{dx}$  at  $x = 1$  is
- (A) -2            (B) 0            (C) 2            (D) 4            (E) not defined
6. What is  $\lim_{h \rightarrow 0} \frac{8\left(\frac{1}{2} + h\right)^8 - 8\left(\frac{1}{2}\right)^8}{h}$ ?
- (A) 0            (B)  $\frac{1}{2}$             (C) 1            (D) The limit does not exist.  
(E) It cannot be determined from the information given.
7. For what value of  $k$  will  $x + \frac{k}{x}$  have a relative maximum at  $x = -2$ ?
- (A) -4            (B) -2            (C) 2            (D) 4            (E) None of these
15. If  $f'(x)$  and  $g'(x)$  exist and  $f'(x) > g'(x)$  for all real  $x$ , then the graph of  $y = f(x)$  and the graph of  $y = g(x)$
- (A) intersect exactly once.  
(B) intersect no more than once.  
(C) do not intersect.  
(D) could intersect more than once.  
(E) have a common tangent at each point of intersection.

16. If  $y$  is a function of  $x$  such that  $y' > 0$  for all  $x$  and  $y'' < 0$  for all  $x$ , which of the following could be part of the graph of  $y = f(x)$ ?



17. The graph of  $y = 5x^4 - x^5$  has a point of inflection at
- (A)  $(0,0)$  only                      (B)  $(3,162)$  only                      (C)  $(4,256)$  only  
 (D)  $(0,0)$  and  $(3,162)$                       (E)  $(0,0)$  and  $(4,256)$
18. If  $f(x) = 2 + |x - 3|$  for all  $x$ , then the value of the derivative  $f'(x)$  at  $x = 3$  is
- (A)  $-1$                       (B)  $0$                       (C)  $1$                       (D)  $2$                       (E) nonexistent
19. A point moves on the  $x$ -axis in such a way that its velocity at time  $t$  ( $t > 0$ ) is given by  $v = \frac{\ln t}{t}$ .  
 At what value of  $t$  does  $v$  attain its maximum?
- (A)  $1$                       (B)  $e^{\frac{1}{2}}$                       (C)  $e$                       (D)  $e^{\frac{3}{2}}$   
 (E) There is no maximum value for  $v$ .
20. An equation for a tangent to the graph of  $y = \arcsin \frac{x}{2}$  at the origin is
- (A)  $x - 2y = 0$                       (B)  $x - y = 0$                       (C)  $x = 0$                       (D)  $y = 0$                       (E)  $\pi x - 2y = 0$