

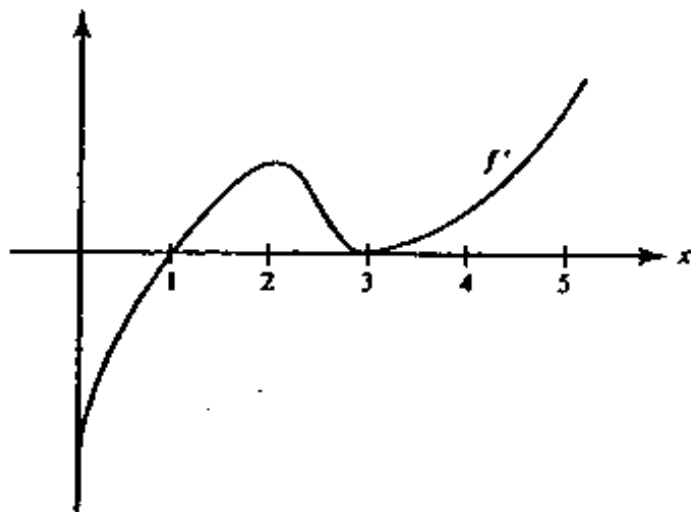
Chapter 5 P2 Multiple Choice Practice Worksheet

25. The function $f(x) = x^4 - 4x^2$ has
- (A) one relative minimum and two relative maxima
 - (B) one relative minimum and one relative maximum
 - (C) two relative maxima and no relative minimum
 - (D) two relative minima and no relative maximum
 - (E) two relative minima and one relative maximum
26. The number of inflection points of the curve in Question 25 is
- (A) 0
 - (B) 1
 - (C) 2
 - (D) 3
 - (E) 4

For Questions 42 and 43, $f'(x) = x \sin x - \cos x$ for $0 < x < 4$. (Calculator)

42. f has a local maximum when x is approximately
- (A) 0.9
 - (B) 1.2
 - (C) 2.3
 - (D) 3.4
 - (E) 3.7
43. f has a point of inflection when x is approximately
- (A) 0.9
 - (B) 1.2
 - (C) 2.3
 - (D) 3.4
 - (E) 3.7

Use the graph of f' on $[0,5]$, shown below, for Questions 56 and 57.



56. f has a local minimum at $x =$

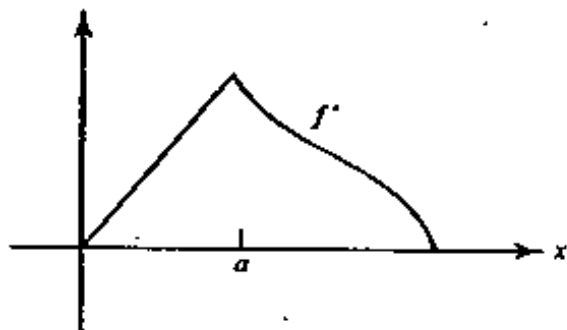
- (A) 0 (B) 1 (C) 2 (D) 3 (E) 5

57. f has a point of inflection at $x =$

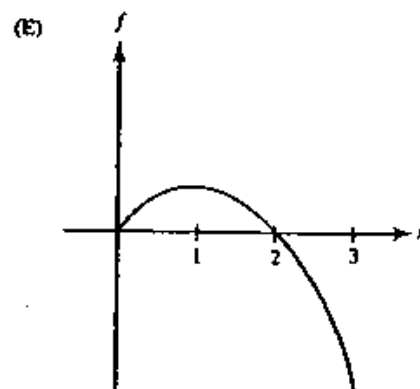
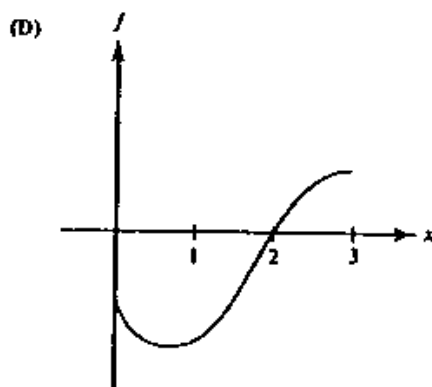
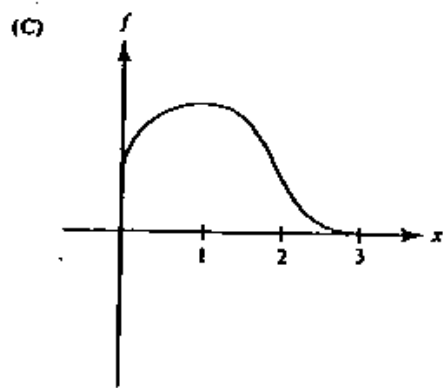
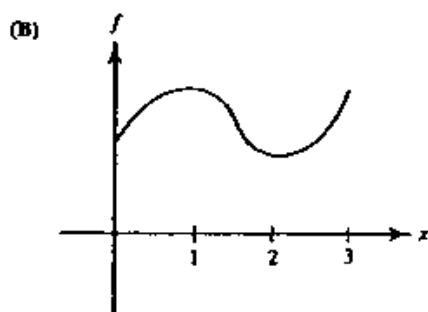
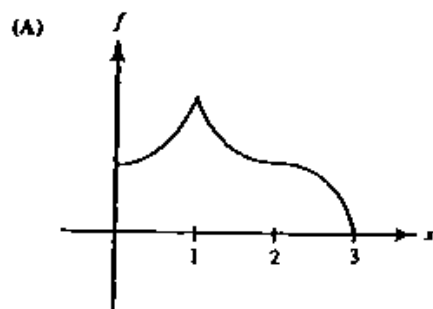
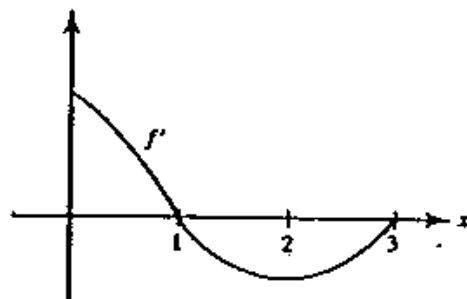
- (A) 1 only (B) 2 only (C) 3 only
(D) 2 and 3 only (E) none of these

58. It follows from the graph of f' , shown at the right, that

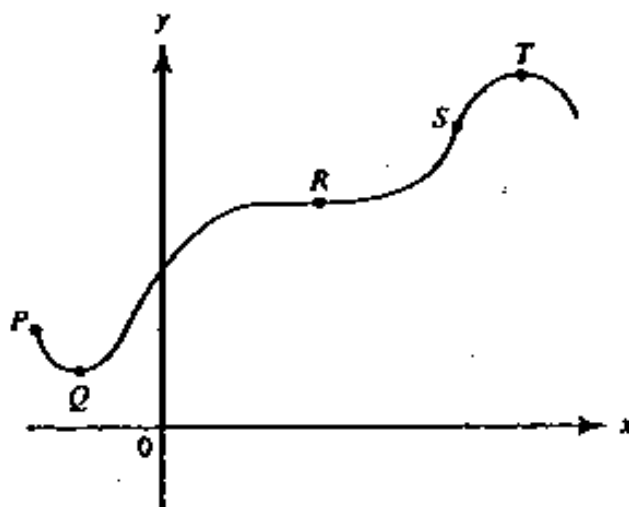
- (A) f is not continuous at $x = a$
(B) f is continuous but not differentiable at $x = a$
(C) f has a relative maximum at $x = a$
(D) f has a point of inflection at $x = a$
(E) none of these



75. Given f' as graphed, which could be the graph of f ?



Use the following graph for Questions 82–84.



82. At which labeled point do both $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ equal zero?
- (A) *P* (B) *Q* (C) *R* (D) *S* (E) *T*
83. At which labeled point is $\frac{dy}{dx}$ positive and $\frac{d^2y}{dx^2}$ equal to zero?
- (A) *P* (B) *Q* (C) *R* (D) *S* (E) *T*
84. At which labeled point is $\frac{dy}{dx}$ equal to zero and $\frac{d^2y}{dx^2}$ negative?
- (A) *P* (B) *Q* (C) *R* (D) *S* (E) *T*

25. E
26. C
35. B
36. D
37. A
38. E
39. B
40. D
41. A
42. D
43. C
56. B
57. D
58. D
67. C
68. E
69. C

Answers

72. B
73. B
74. D
75. C
92. E
82. C
83. D
84. E