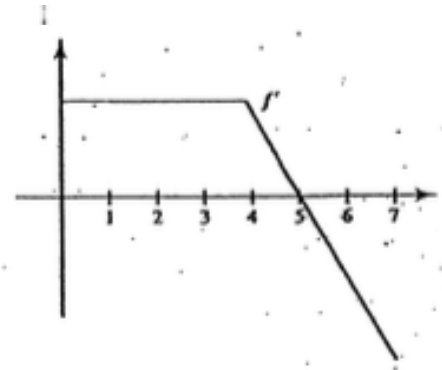


Ch 5 P2 Applications of Derivatives Multiple Choice Worksheet

B

12. Which statement best describes f at $x = 5$?

- (A) f has a root. (B) f is a maximum. (C) f is a minimum.
 (D) f has a point of inflection. (E) none of these.



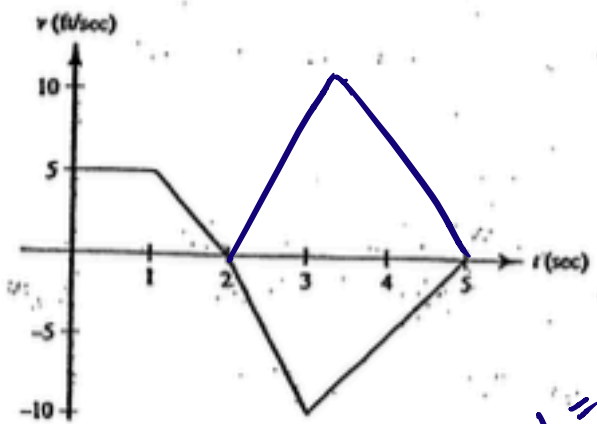
D

13. The function is concave downward for which interval?

- (A) (0,4) (B) (4,5) (C) (5,7)
 (D) (4,7) (E) none of these

where f' is decr.

use the graph shown for Questions 18–24. It shows the velocity of an object moving along a straight line during the time interval $0 \leq t \leq 5$.



Speed = |velocity|
 $|-10| = 10$

D

18. The object attains its maximum speed when $t =$

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

D

19. The speed of the object is increasing during the time interval

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

F

20. The acceleration of the object is positive during the time interval

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

D

21. How many times on $0 < t < 5$ is the object's acceleration undefined?

- (A) none (B) 1 (C) 2 (D) 3 (E) more than 3

R

22. During $2 < t < 3$ the object's acceleration (in ft/sec^2) is

- (A) -10 (B) -5 (C) 0 (D) 5 (E) 10

C

23. The object is furthest to the right when $t =$

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

moves \rightarrow then changes direction @ 2

B

24. The object's average acceleration (in ft/sec^2) for the interval $0 \leq t \leq 3$ is

- (A) -15 (B) -5 (C) -3 (D) -1 (E) none of these

$$\frac{v(3) - v(0)}{3 - 0} = \frac{-10 - 5}{3} = -5$$

25. The function $f(x) = x^4 - 4x^3$ 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

28. The total number of local maximum and minimum points of the function whose derivative, for all x , is given by $f'(x) = x(x-3)^2(x+1)^4$ is

- (A) 0 (B) 1 (C) 2 (D) 3 (E) none of these

30. On the closed interval $[0, 2\pi]$, the maximum value of the function $f(x) = 4 \sin x - 3 \cos x$ is

- (A) 3 (B) 4 (C) $\frac{24}{5}$ (D) 5 (E) none of these

MC Answers.

- | | |
|-------|-------|
| 12. B | 26. C |
| 13. D | 28. B |
| 18. D | 30. D |
| 19. D | |
| 20. E | |
| 21. D | |
| 22. A | |
| 23. C | |
| 24. B | |
| 25. E | |