P XI M1 Pg36

Motion in 1-D

Q1-6: Pg36
Q7-10: Pg37
Q11: Pg 38
Q12-13: Pg39

ASSIGNMENT-2
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Find the derivative of given function w.r.t. corresponding independent variable in question 1 to 4 :

1. $y = x^2 + x + 8$

(A) $x^3 + x^2$ (B) $2x + 1$

(C) 0 (D) $\frac{x^3}{3} + \frac{x^2}{2}$

Pg-36

2. $s = 5t^3 - 3t^5$

(A) $15t^2 - 15t^4$ (B) $15t - 3$

(C) 0 (D) $\frac{5t^4}{4}$

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3. $y = 5 \sin x$

(A) $5 \cos x$ (B) 5

(C) $\sin x$ (D) $5 + \cos x$

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4. $y = x^2 + \sin x$

(A) $2x \sin x$ (B) $2x \sin x$

(C) $2x + \cos x$ (D) $2x \cos x$

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Find the first derivative & second derivative of given function w.r.t. corresponding independent variable.

5. $y = 6x^2 - 10x$

(A) $12x - 10, 12$ (B) $12x - x, 12$

(C) $12x^3 - 10x^2, 12x$ (D) $0, 0$

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6. $r = \frac{12}{x}$

(A) $\frac{12}{x^2}$ (B) $12x$

(C) 12 (D) $\frac{-12}{x^2}$

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Find derivative of given functions w.r.t the independent variable x.

7. $x \sin x$

(A) $x \cos x + \sin x$ (B) $x \sin x + \cos x$

(C) $x + \cos x$ (D) $1 + \cos x$

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8. $y = e^x \ell nx$

(A) $\frac{e^x}{x} + e^x \ell nx$ (B) $\frac{e^x}{x} - e^x \ell nx$

(C) $\frac{e^x}{x} + x$ (D) $\frac{e^x}{x} - x$

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9. $y=\left(x^2+1\right)\left(x+5+\frac{1}{x}\right)$

(A) $2x\left(x+5+\frac{1}{x}\right)+\left(x^2+1\right)\left(1-\frac{1}{x^2}\right)$ (B) $2x\left(x+5+\frac{1}{x}\right)-\left(x^2+1\right)\left(1-\frac{1}{x^2}\right)$

(C) $2x+1-\frac{1}{x^2}$ (D) 0

10. $y = x^2 \tan x$

(A) $2x \cot x$ (B) $2x \sec^2 x$

(C) $2x + \cot x$ (D) $2x \tan x + x^2 \sec^2 x$

11. Suppose that the radius r and surface area $S = 4\pi r^2$ of a sphere are differentiable function of t. Write an equation that relates $\frac{ds}{dt}$ to $\frac{dr}{dt}$

(A) $\frac{ds}{dt}=8\pi r\frac{dr}{dt}$ (B) $\frac{ds}{dt}=4\pi r\frac{dr}{dt}$

(C) $\frac{ds}{dt}=4\pi r^2\frac{dr}{dt}$ (D) $\frac{ds}{dt}=\frac{dr}{dt}$

Find integrals of given function in question :

12. $x^2 - 2x + 1$

(A) $\frac{x^3}{3}-x^2+x$ (B) $\frac{x^3}{3}+x^2-x$

(C) $2x - 2$ (D) $2x + 2$

13. $-3x^{-4}$

(A) x^{-5} (B) x^{-3}

(C) x^{-4} (D) 0

ANSWER KEY

1. (B)
2. (A)
3. (A)
4. (C)
5. (A)
6. (D)
7. (A)
8. (A)
9. (A)
10. (D)
11. (A)
12. (A)
13. (B)