Abdon Morales | book HW Week 05 3.2 | Sept 25, 2023

Question 46

A $[c \cdot f(x)]' = c \cdot f'(x)$

$[f(x) \pm g(x)]' = f'(x) + g'(x)$

$3 \cdot (6) + 8 \cdot (-3)$ $\quad -\frac{24}{-18}$

$18 + -24$ $\quad 06$

$18 - 24$

$\boxed{-6} = h'(4)$

B $[f(x) \cdot g(x)]' = f'g + g'f$

$f'(4) \cdot g(4) + g'(4) \cdot f(4)$

$(6 \cdot 5) + (-3 \cdot 2)$

$30 - 6$

$\boxed{24} = h'(4)$

C $\left[\frac{f(x)}{g(x)}\right]' = \frac{f'g - g'f}{g^2}$

$f'(4) \cdot g(4) - g'(4) \cdot f(4)$ (6, 5, −3, 2)

$\frac{(g(4))^2}{}$

$\frac{(6 \cdot 5) - (-3 \cdot 2)}{(5)^2} = \frac{30+6}{25}$

$\boxed{\frac{36}{25}} = 1.44$

D $\frac{f'(4) \cdot (f(x) + g(x)) - g'(4) f(4)}{(f(x)+g(x))^2}$

$\frac{6 \cdot (2+5) - (-3 \cdot 2)}{(2+5)^2} = \frac{(6 \cdot 7) - (-6)}{49} = \frac{42+6}{49} = \frac{48}{49}$

Question 51

A

$U'(1)$

$U(x) = f(x) g(x)$

$g(1) = 3 \quad g'(1) = 1$

$f(1) = 2 \quad f'(1) = \frac{1}{3}$

$(f'(1) \cdot g(1)) + (g'(1) \cdot f(1))$

$(f'(1) \cdot 3) + (g'(1) \cdot 2)$

$\left(\left(\frac{1}{3}\right) \cdot 3\right) + (1 \cdot 2)$

$\boxed{1 + 2 = 3} = U'(1)$

B $\frac{[f'(x) \cdot g(x)] - (g'(x) \cdot f(x))}{g^2}$

$g(4) = 2 \quad g'(4) = 1$

$f(4) = 3 \quad f'(4) = \frac{1}{3}$

$\frac{\left(\frac{1}{3}(2)\right) - (1 \cdot 3)}{2^2}$

$\frac{\left(\frac{2}{3}\right) - (3)}{4} = \frac{-\frac{7}{3}}{4} = \boxed{\frac{-7}{12}} = V'(1)$

Question 52

A

$f(2)=3 \quad f'(2)=0$

$g(2)=2 \quad g'(2)=\frac{1}{2}$

$f'g+g'f=[f\cdot g]'$

$(0\cdot 2)+\left(\frac{1}{2}\cdot 3\right)=\boxed{\frac{3}{2}=P'(2)}$

$(x-2)^2+3$

$x-2$

$x \quad x^2-2x$

$-2 \quad -2x+4$

x^2-4x+4

$\boxed{2x-4}$

$2(2)-4$

B

$f(7)=5 \quad f'(7)=\frac{1}{4}$

$g(7)=1 \quad g'(7)=-\frac{2}{3}$

$\left[\frac{f(x)}{g(x)}\right]'=\frac{f'g-g'f}{g^2}$

$\frac{\frac{1}{4}(1)-\left(-\frac{2}{3}\right)(5)}{(2)^2}$

$\frac{\frac{1}{4}+\frac{10}{3}}{(1^2)}$

$\boxed{Q'(7)=\frac{43}{12}}$

Question 64

A

$\boxed{F'(x)=f'g+g'f \rightarrow F''(x)=f''g+g'f+g''f+f'g'}$

$f''g+2f'g'+g''f$

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Question 69

B $F''(x) = f''g + 2f'g' + g''f$ or

$f''g + g'f' + g''f + f'g'$

$[f''g']' = f'''g' + g''f''$

$[g'f'] = f''g' + g''f'$ (2)

$[g''f] = f'g'' + g'''f$

$F''' = f'''g' + g''f'' + 2f''g' + 3f'g'' + g'''f$

$F^{(4)} = f^{(4)}g' + 2f'''g'' + f''g''' + f'g''' + fg^{(4)} + f'''g' + 6f''g'' + 5f'g'''$

Abdon M | Additional ~~Practice~~ Problem #1 | Sept 27 2023

$\left[\frac{1}{2}x^2+2x\right]' = x+2$

$y-y_1 = m(x-x_1)$

$(x-0)$

$y+2 = (x+2)x$ to find value x to find tan line that passes through given points

$\frac{1}{2}x^2+2x = x^2+2x$

$-2x \qquad -2x$

$\frac{1}{2}x^2 = x^2$

$-x^2$

$\frac{1}{2}x^2 - x^2 = 0$

$-\frac{1}{2}x^2 = 0$

$\sqrt{x^2} = \sqrt{0}$

$x = 0$

$y+2 = (0+2)x$

$y+2 = 2x-2$

-2

$\boxed{y = 2x-2}$

tan lines