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10-

a) $\frac{d}{du}(u5) \cdot \frac{d}{dy}(u) = y' = 5u^4 \cdot 2$

$y' = 5(2x+1)^4 \cdot 2$

b) $\frac{d}{du}(u^9) \cdot \frac{d}{dx}(y-3x) = y' = 9u^8 \cdot (-3)$

$y' = 9(4-3x)^8 \cdot (-3)$

c) $\frac{d}{du}(u^{-7}) \cdot \frac{d}{dx}\left(7 - \frac{x}{7}\right) = y' = 7u^{-8} \cdot \left(-\frac{1}{7}\right)$

$y' = 7\left(7 - \frac{x}{7}\right)^{-8} \cdot \left(-\frac{1}{7}\right)$

d) $\frac{d}{du}(-u^{-10}) \cdot \frac{d}{dx} = \left(\frac{x}{2} - 1\right) = y' = -10u^{-11} \cdot \frac{1}{2}$

$y' = -10 \cdot \left(\frac{x}{2} - 1\right)^{-11} \cdot \frac{1}{2}$

e) $\frac{d}{du}(u^4) \cdot \frac{d}{dx}\left(\frac{x^2}{8} + x - \frac{1}{x}\right) = (4u)^3 \cdot \left(\frac{1}{4}x + 1 - \frac{1}{x^2}\right) =$

$4\left(\frac{x^2}{8} + x - \frac{1}{x}\right)^3 \cdot \left(\frac{1}{4}x + 1 - \frac{1}{x^2}\right)$

f) $\frac{d}{du}(\sqrt{u}) \cdot \frac{d}{dx}(3x^2 - 4x + 6) = \frac{1}{2\sqrt{u}} \cdot (3 \cdot 2x - 4)$

$= \frac{1}{2\sqrt{3x^2 - 4x + 6}} \cdot (3 \cdot 2x - 4)$

g) $\frac{d}{du}(\sec(u)) \cdot \frac{d}{dx} \cdot (tg\, x) = tg(u) \cdot \sec(u) \cdot \sec^2 x$

$= tg(tg(x) \cdot \sec(tg(x))) \cdot \sec^2 x$

h) $\frac{d}{du}(\text{cotg}(u)) \cdot \frac{d}{dx}\left(\pi - \frac{1}{x}\right) = -\text{cossec}^2 u \cdot \frac{1}{x^2}$

$= -\text{cossec}^2\left(\pi - \frac{1}{x}\right) \cdot \frac{1}{x^2}$

i) $\frac{d}{du}(u^3) \cdot \frac{d}{dx}\text{sen}(x) = 3u^2 \cdot \cos(x)$

$= 3\,\text{sen}(x)^2 \cdot \cos(x)$

j) $5 \cdot \frac{d}{du}(u^{-4}) \cdot \frac{d}{dx}(\cos(x)) = 5 \cdot -4u^{-5} \cdot (-\text{sen}(x))$

$= 5 \cdot (-4\cos(x))^{-5} \cdot (-\text{sen}(x))$

k) $\frac{d}{du}(e^u) \cdot \frac{d}{dx}(-5x) = e^u \cdot -5 = e^{-5x} \cdot (-5)$

l) $\frac{d}{du}(e^u) \cdot \frac{d}{dx}\left(\frac{2x}{3}\right) = e^u \cdot \frac{2}{3} = e^{\frac{2x}{3}} \cdot \frac{2}{3}$

11-

a) $\frac{d}{du}(6u-9) \cdot \frac{d}{dx}\left(\left(\frac{1}{2}\right) \cdot x^4\right) = 6 \cdot 2x^3$

b) $\frac{d}{du}(2u^3) \cdot \frac{d}{dx}(8x-1) = 6u^2 \cdot 8 = 6 \cdot (8x-1)^2 \cdot 8$

c) $\frac{d}{du}(\text{sen}(u)) \cdot \frac{d}{dx}(3x+1) = \cos(u) \cdot 3 = \cos(3x+1) \cdot 3$

d) $\frac{d}{du}(\cos(u)) \cdot \frac{d}{dx}\left(\frac{-x}{3}\right) = -\text{sen}(u) \cdot \left(-\frac{1}{3}\right) = -\text{sen}\left(\frac{-x}{3}\right) \cdot \left(\frac{-1}{3}\right)$

e) $\frac{d}{du}(\cos(u)) \cdot \frac{d}{dx}(\text{sen}(x)) = -\text{sen}(x)\cos(x)$

$-\text{sen}(\text{sen}(x)) \cdot \cos(x)$

12-

a) $\frac{d}{dx} \cdot 2 \cdot F(x) = \frac{1}{3}$

b) $\frac{d}{dx}\ F(x) + g(x) = 2\pi + 5$

e) $\frac{d}{dx}\ F(x) \cdot g(x) = 2\pi \cdot -4 + 3 \cdot 5$

$= 2\pi \cdot -4 + 15$

d) $\frac{d}{dx} \cdot \frac{F(x)}{g(x)} = \frac{\frac{1}{3} \cdot 2 - 8 \cdot -3}{2^2}$

e) $\frac{d}{dx}\ F(g(x)) = \frac{1}{3}\left(\frac{2}{1}\right) \cdot (-3)$

F) $\frac{d}{du}(\sqrt{u}) \cdot \frac{d}{dx}(F(x)) = \frac{1}{2\sqrt{x}} \cdot \frac{1}{3}$

g) $\frac{d}{du}\left(\frac{1}{u}\right) \cdot \frac{d}{dx}\left(g^2(x)\right) = -\frac{1}{u^2} \cdot 5^2 = \frac{-1}{g^2(x)} \cdot 5^2$

h) $\frac{d}{du}(\sqrt{u}) \cdot \frac{d}{dx}\left(\cancel{F}^2(x) + g^2(x)\right) = \frac{1}{2\sqrt{8}} \cdot \frac{1}{3}^2 - 3$