1. Find the derivative of $(6v^2 + 2v + 5)(4v^{-5} + 3)$.

    Solution. $(12v + 2)(4v^{-5} + 3) + (6v^2 + 2v + 5)(-20v^{-6})$.

2. Find the derivative of $\dfrac{5w^4 - 2}{\sin(4w)}$.

    Solution. $\dfrac{20w^3 \sin(4w) - 4(5w^4 - 2)\cos(4w)}{\sin^2(4w)}$.

3. Find the derivative of $\ln(\sin(5u))$.

    Solution. $\dfrac{5\cos(5u)}{\sin(5u)}$.

4. Find the derivative of $\dfrac{(\ln y)(\cos y)}{y^4 - 2y}$.

    Solution. $\dfrac{\left(y^{-1}\cos y + (\ln y)(-\sin y)\right)(y^4 - 2y) - (\ln y)(\cos y)(4y^3 - 2)}{(y^4 - 2y)^2}$.

5. Find the derivative of $(x^4 + 2)(e^{-5x} - 9)^4$.

    Solution. $4x^3(e^{-5x} - 9)^4 + (x^4 + 2)4(e^{-5x} - 9)^3(-5e^{-5x})$.

6. Find the derivative of $(e^v(\cos v) + e^{-3v})^6$.

    Solution. $6(e^v(\cos v) + e^{-3v})^5((e^v\cos v - e^v\sin v) - 3e^{-3v})$.

7. Find the derivative of $\left(\sin(e^{-8v} + 6)\right)^7$.

    Solution. $7\left(\sin(e^{-8v} + 6)\right)^6\left(\cos((e^{-8v} + 6))(-8e^{-8v})\right)$.

8. Find the derivative of $\dfrac{\ln(\sin w))}{6w^4 + 4w}$.

    Solution. $\dfrac{\frac{\cos w}{\sin w}(6w^4 + 4w) - (\ln(\sin w))(24w^3 + 4)}{(6w^4 + 4w)^2}$.

9. Find $\dfrac{dy}{dx}$ for $(-3y^6) + \cos(2x) + x^3(\cos y) = 9$.

    Solution. $\dfrac{dy}{dx} = \dfrac{2\sin(2x) - 3x^2\cos y}{-18y^5 - x^3\sin y}$.

10. Find the derivative of $4(\arcsin u) + 4 + 6(\ln(2u)) + 2u^{1/2}$.

    Solution. $\dfrac{4}{\sqrt{1 - u^2}} + \dfrac{6}{u} + u^{-1/2}$.