1. Find the derivative of $\big(e^{-6w}-8\big)(\tan(3w))$.

   Solution. $\big(-6e^{-6w}\big)(\tan(3w))+3\big(e^{-6w}-8\big)\sec^2(3w)$.

2. Find the derivative of $\dfrac{3v^5+v}{\sin(9v)}$.

   Solution. $\dfrac{\big(15v^4+1\big)\sin(9v)-9\big(3v^5+v\big)\cos(9v)}{\sin^2(9v)}$.

3. Find the derivative of $\cos\big(7w^3-8w\big)$.

   Solution. $\big(-\big(21w^2-8\big)\big)\big(\sin\big(7w^3-8w\big)\big)$.

4. Find the derivative of $\dfrac{y^6(\sin y)}{e^{2y}+4y}$.

   Solution. $\dfrac{\big(6y^5\sin y+y^6\cos y\big)\big(e^{2y}+4y\big)-y^6\sin y\big(2e^{2y}+4\big)}{(e^{2y}+4y)^2}$.

5. Find the derivative of $\big(\cos(5x)\big)\big(x^6-5x\big)^{-2}$.

   Solution. $-5\sin(5x)\big(x^6-5x\big)^{-2}+\cos(5x)\big(-2(x^6-5x)^{-3}\big)(6x^5-5)$.

6. Find the derivative of $\ln\big(e^v(\sin v)-\pi^2\big)$.

   Solution. $\dfrac{e^v\sin v+e^v\cos v}{e^v\sin v-\pi^2}$.

7. Find the derivative of $e^{\left(\sin(v^2+v+7)\right)}$.

   Solution. $e^{\left(\sin(v^2+v+7)\right)}\big(\cos(v^2+v+7)\big)(2v+1)$.

8. Find the derivative of $\dfrac{\ln(3z^4-5)}{3z^5+1}$.

   Solution. $\dfrac{\frac{12z^3}{3z^4-5}\big(3z^5+1\big)-15z^4\big(\ln(3z^4-5)\big)}{\big(3z^5+1\big)^2}$.

9. Find $\dfrac{dy}{dx}$ for $x^4+\sin y+x^4y^4=5$.

   Solution. $\dfrac{dy}{dx}=\dfrac{-4x^3-4x^3y^4}{\cos y+4x^4y^3}$.

10. Find the derivative of $(\arcsin x)+1+6\sqrt{x}+2e^{-3x}$.

    Solution. $\dfrac{1}{\sqrt{1-x^2}}+\dfrac{3}{\sqrt{x}}-6e^{-3x}$.