1. Differentiate the function \( f(x) = (2x^3 - 7x + 11)^4 \). Express your answer in terms of elementary functions.

2. Let \( y = (x^6 + 2)^4 \). Find \( \frac{dy}{dx} \). Express your answer in terms of elementary functions.

3. Let \( z = (\cos(t))^5 \). Find \( \frac{dz}{dt} \). Express your answer in terms of elementary functions.

4. Differentiate the function \( g(x) = \sqrt{6e^{2x} + 2} \). Express your answer in terms of elementary functions.

5. Differentiate the function \( f(x) = \frac{4}{(\ln(x))^3} \). Express your answer in terms of elementary functions.

6. Let \( y = -\frac{3}{(\ln(x))^7} \). Find \( \frac{dy}{dx} \). Express your answer in terms of elementary functions.

7. Let \( y = -2 \ln (e^t + 3) \). Find \( \frac{dy}{dt} \). Express your answer in terms of elementary functions.

8. Differentiate the function \( g(x) = e^{-4x} \cos (3x) \). Express your answer in terms of elementary functions.
1. $4 \left( 6x^2 - 7 \right) \left( 2x^3 - 7x + 11 \right)^3$

2. $\frac{24x^5}{5 \left( x^6 + 2 \right)^{\frac{5}{4}}}$

3. $-5 (\cos(t))^4 \sin(t)$

4. $\frac{6e^{2x}}{\sqrt{6e^{2x} + 2}}$

5. $-\frac{12}{x (\ln(x))^4}$

6. $\frac{3}{4x (\ln(x))^{\frac{5}{2}}}$

7. $-\frac{2e^t}{e^t + 3}$

8. $-3e^{-4x} \sin(3x) - 4e^{-4x} \cos(3x)$