# Derivatives of More Complicated Functions Worksheet

Find the derivatives of the following functions.

1. $f(x) = (x^2 + 2x)^{2012}$

2. $f(x) = \sqrt{\sin^2(x) + x^2}$

3. $g(x) = e^{x^3 - 2\cos(x)} + \ln(x^2)$

4. $w(z) = 2^{e^z - \sqrt{z}}$

5. $h(x) = e^{2x}\cos(x^3 + 3x)$

6. $u(z) = \frac{(z^2 - z)^3}{e^{(z^2 - z)^3}}$

7. $k(u) = \ln(\sqrt{u^5 + u^2})$

8. $g(y) = \tan^2\left(\frac{1}{y+1}\right)$

9. $f(x) = \frac{\cos(2x + \sqrt{x})}{\sqrt{x}}$

10. $u(x) = (\cos(2\pi))^{\sqrt{x^3 - \tan(x^2)}}\left(e^{\cos^2(x) - \sin^2(x)}\right)$

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