

1. Let $f(x) = \ln(x)$, $g(x) = x^2 + 3x$, and $h(x) = \cos(x)$.
Find the following derivatives.

(a) $(f \circ g)'(x)$

(b) $(g \circ f)'(x)$

(c) $(h \circ g)'(x)$

2. Find the derivatives of the following functions.

(a) $(3x^2 + 2)^{14}$

(b) $\ln(\sin x)$

(c) $(\sin(3x^2))^2$

(d) $x^2 \sin(x^3)$

(e) $\sqrt{\ln(x^2 + 2x)}$