

Differentiate and simplify:

1) $f(x) = \ln(4 + 5x)$

8) $G(x) = \ln(\sec 2x + \tan 2x)$

2) $h(x) = \ln \sqrt{4 + 5x}$

9) $f(x) = \ln \sqrt{\tan x}$

3) $f(t) = \ln(3t + 1)^2$

10) $f(w) = \ln \left(3w + \frac{1}{2w} - 5 \right)$

4) $g(t) = \ln^2(3t + 1)$

11) $f(x) = x / \ln x$

5) $f(x) = \ln(\sqrt[3]{4 - x^2})$

6) $f(y) = \ln(\sin 5y)$

7) $f(x) = \cos(\ln x)$