

Derivative Skills Review

2 POINTS EACH – NO PARTIAL CREDIT – NO CALCULATORS

1. Let $f(t) = \frac{\ln(t)}{t^2+1}$. Compute $f'(t)$.

2. Find $\frac{dy}{dx}$ if $y = \sqrt{\sin(2x)}$

3. Find the slope of the tangent line to the curve $y = e^x \tan^{-1}(x)$ at the point $(0, 0)$.

4. Find the general form of the anti-derivative of the function $f(x) = 3e^x + \sec^2(x)$.

5. Suppose $g'(t) = 2t^3 + 3t + 5$ and $g(1) = 5$. Find a formula for $g(t)$.