

The Differentiation Gateway Exam

Name, please:

Compute the following derivatives. No calculators allowed. Do not simplify your answers. *Be careful with your parentheses!* No partial credit; 6 out of 7 must be correct to pass. You have 20 minutes.

1) $y = \frac{1}{2}(e^x - e^{-x})$

2) $y = \sqrt{\sin(3\pi x)}$

3) $R = \frac{\ln(p+3)}{p^2}$

4) $y = (\ln x)^a$, where a is a positive constant

5) $Y(\alpha) = (\cos \alpha)^{3/2}$

6) $H = s^2(1 - s^a)$, where a is a positive constant

7) $S = \rho^{78} - 45\rho^{25} + 126\rho - e\pi$