

Name _____

- You have 15 minutes
- No calculators
- Show sufficient work

1. (3 points) Given $g(x) = \ln(2 \sin(x) + x^2 + 5)$, find its second derivative $g''(x)$.

2. (2 points) Compute $h'(t)$ given that $h(t) = \sec^3(\sqrt{t^4 + 8})$.

3. (3 points) Find the equation of the line tangent to the given curve at the point $(-2, 1)$.

$$(x^2 - 4y)^3 = 3xy^2 + 6$$

4. (2 points) Compute $\frac{dy}{dx}$ for the given function. Write your answer completely in terms of x .

$$y = (\tan(x))^{5 \ln(x)}$$