Quiz 3.1

Name

1. Let f be the function defined by $f(x) = e^{h(x)}$, where h is a differentiable function. Which of the following is equivalent to the derivative of f with respect to x ?

(A) $e^{h(x)}$

(B) $e^{h'(x)}$

(C) $h'(x)e^{h(x)}$

(D) $h(x)e^{h(x)-1}$

2. Let f be the function defined by $f(x) = \sin(h(x))$, where h is a differentiable function. Which of the following is equivalent to the derivative of f with respect to x ?

(A) $\cos(h(x))$

(B) $\cos(h'(x))$

(C) $\cos(h(x))h'(x)$

(D) $\sin(h(x))h'(x)$

3. Let $f(x) = 5x^4$ and $g(x) = e^{2x} + x$. If h is the function defined by $h(x) = f(g(x))$, which of the following gives a correct expression for $h'(x)$?

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(A) $20(g(x))^3 = 20\left(e^{2x} + x\right)^3$

(B) $20(g'(x))^3 = 20\left(2e^{2x} + 1\right)^3$

(C) $20(g(x))^3 \cdot g'(x) = 20\left(e^{2x} + x\right)^3 \cdot \left(2e^{2x} + 1\right)$

(D) $5(g'(x))^4 = 5\left(2e^{2x} + 1\right)^4$