Quiz 3.5

Name

1. Which of the following does not require the use of the chain rule to find $\frac{dy}{dx}$?

(A) $y = \cos^{-1}(10x^5 - x^2)$

(B) $4x^{10} + 6y^3 = x^2y^5 - 2$

(C) $y = 10\sqrt{x} - \frac{4}{x^3} + x^5$

(D) $\sin(2x - y) + e^{2y} + \frac{x}{6} = 0$

2.

x	4	8
$f(x)$	11	6
$f'(x)$	-4	-3

The table above gives selected values for a differentiable and decreasing function f and its derivative. Let g be the decreasing function given by $g(x) = f(4x) - f(2x)$, where $g(2) = f(8) - f(4) = -5$. Which of the following describes a correct process for finding $(g^{-1})'(-5)$?

(A) $(g^{-1})'(-5) = \frac{1}{g'(g^{-1}(-5))} = \frac{1}{g'(2)}$ and $g'(2) = 4f'(8) - 2f'(4)$

(B) $(g^{-1})'(-5) = \frac{1}{g'(g^{-1}(-5))} = \frac{1}{g'(2)}$ and $g'(2) = f'(8) - f'(4)$

(C) $(g^{-1})'(-5) = g'(g^{-1}(-5)) = g'(2)$ and $g'(2) = f'(8) - f'(4)$

(D) $(g^{-1})'(-5) = g'(g^{-1}(-5)) = g'(2)$ and $g'(2) = 4f'(8) - 2f'(4)$

3. Which of the following could be used to find the slope of the line tangent to the curve $\sin^{-1}(2x^2 + y^2) = \frac{2}{x} + y^2$?

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(A) $\frac{1}{\sqrt{1-(2x^2+y^2)^2}} = \frac{-2}{x^2} + 2y\frac{dy}{dx}$

(B) $\frac{4x+2y}{\sqrt{1-(2x^2+y^2)^2}} = \frac{-2}{x^2} + 2y$

(C) $\frac{4x+2y\frac{dy}{dx}}{\sqrt{1-(2x^2+y^2)^2}} = \frac{-2}{x^2} + 2y\frac{dy}{dx}$

(D) $\frac{4x+2y\frac{dy}{dx}}{\sqrt{1-(2x^2+y^2)}} = \frac{-2}{x^2} + 2y\frac{dy}{dx}$