AP Calculus AB Name_____

Quiz 2.1-2.2 Practice

Period____

Differentiate each function with respect to *x*.

1) $f(x) = 2$

A) $f'(x) = 4$ B) $f'(x) = -6$

C) $f'(x) = 5$ D) $f'(x) = 0$

2) $f(x) = 5x^4 - 3x^2 + x$

A) $f'(x) = 20x^3 - 6x + 1$

B) $f'(x) = 20x^4 - 6x^2 + x$

C) $f'(x) = 5x^3 - 3x + 1$

D) $f'(x) = 15x$

3) $f(x) = -\frac{5}{x^5}$

A) $f'(x) = \frac{25}{x^6}$

B) $f'(x) = -\frac{5}{x^6}$

C) $f'(x) = 25x$

D) $f'(x) = \frac{25}{x^5}$

4) $y = 2\sqrt[3]{x^2}$

A) $\frac{dy}{dx} = \frac{4x^{\frac{2}{3}}}{3}$ B) $\frac{dy}{dx} = \frac{2}{x^{\frac{1}{3}}}$

C) $\frac{dy}{dx} = \frac{4}{3x^{\frac{1}{3}}}$ D) $\frac{dy}{dx} = \frac{4x}{3}$

For each problem, find the slope of the function at the given value.

5) $y = -x^3 + 4x^2 - 5x - 1$ at $x = 0$

A) -5 B) -85

C) -16 D) -21

For each problem, find the equation of the line tangent to the function at the given point. Your answer should be in slope-intercept form.

6) $y = -2x^2 + 8x - 10$ at $(2, -2)$

A) $y = -8x + 22$

B) $y = 8x - 10$

C) $y = -2$

D) $y = 12x - 8$

A particle moves along a horizontal line. Its position function is $s(t)$ for $t \geq 0$. For each problem, find the velocity at the given value for *t*.

7) $s(t) = -t^2 + 22t - 121$; at $t = 8$

A) $v(8) = 5$ B) $v(8) = 8$

C) $v(8) = -3$ D) $v(8) = 6$

Use the definition of the derivative to find the derivative of each function with respect to *x*.

8) $f(x) = x^2 - 3x + 5$

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$f'(x) = 2x - 3$