

## 2.3-2.4 Quiz Review

Period \_\_\_\_\_

**Differentiate each function with respect to the given variable.**

1)  $h(t) = (t^4 - 2)^{-5}$

A)  $h'(t) = -\frac{5}{(t^4 - 2)^6}$

B)  $h'(t) = \frac{4t^3}{(t^4 - 2)^6}$

C)  $h'(t) = 4t^3$

D)  $h'(t) = -\frac{20t^3}{(t^4 - 2)^6}$

2)  $f = \sqrt[5]{-x^2 + 3}$

A)  $\frac{df}{dx} = \frac{1}{5(-x^2 + 3)^{\frac{4}{5}}}$

B)  $\frac{df}{dx} = -\frac{2x}{(-x^2 + 3)^{\frac{4}{5}}}$

C)  $\frac{df}{dx} = -\frac{2x}{5(-x^2 + 3)^{\frac{4}{5}}}$

D)  $\frac{df}{dx} = -2x$

**Differentiate each function with respect to  $x$ .**

3)  $f(x) = \frac{(4x^3 + 5)^3}{x^2 + 2}$

A)  $f'(x) = \frac{2x(14x^3 + 36x - 5)}{(4x^3 + 5)^4}$

B)  $f'(x) = \frac{2x(4x^3 + 5)^2(14x^3 + 36x - 5)}{(x^2 + 2)^2}$

C)  $f'(x) = \frac{2x(4x^3 + 5)^2(14x^3 + 36x - 5)}{x^2 + 2}$

D)  $f'(x) = 2x(4x^3 + 5)^2(14x^3 + 36x - 5)$

4)  $y = \sec(\cot x^3)$

A)  $\frac{dy}{dx} = 3x^2 \sec(\cot x^3) \tan(\cot x^3) \csc^2 x^3$

B)  $\frac{dy}{dx} = -3x^2 \sec^2(\cot x^3) \csc^2 x^3$

C)  $\frac{dy}{dx} = -3x^2 \sec(\cot x^3) \tan(\cot x^3) \csc^2 x^3$

D)  $\frac{dy}{dx} = -3x^2 \sec(\cot x^3) \cot(\cot x^3) \csc^2 x^3$

5)  $y = \csc 2x^3 \cdot (3x^4 + 5)$

A)  $\frac{dy}{dx} = 6x^2 \csc 2x^3 \cdot (2x - 3x^4 \cot 2x^3 - 5 \cot 2x^3)$

B)  $\frac{dy}{dx} = 6x^2(-\csc 2x^3 \cot 2x^3 + 2x)$

C)  $\frac{dy}{dx} = 12x^3 \csc 2x^3$

D)  $\frac{dy}{dx} = -144x^5 \csc 2x^3 \cot 2x^3$

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

6)  $s(t) = -t^4 + 15t^3$

A)  $v(t) = 4t^3 - 33t^2, a(t) = 12t^2 - 66t$

B)  $v(t) = -4t^3 + 45t^2, a(t) = -12t^2 + 90t$

C)  $v(t) = 4t^3 - 42t^2, a(t) = 12t^2 - 84t$

D)  $v(t) = 4t^3 - 36t^2, a(t) = 12t^2 - 72t$

## Answers to 2.3-2.4 Quiz Review

1) D  
5) A

2) C  
6) B

3) B

4) C