

3.3 Derivatives of Products and Quotients.

Differentiate.

1) Find $f'(t)$ for $f(x) = (3x - 4)(4x^3 - x^2 + 1)$ 1) _____

A) $f'(x) = 48x^3 - 19x^2 + 57x + 3$

B) $f'(x) = 36x^3 + 57x^2 - 19x + 3$

C) $f'(x) = 12x^3 + 19x^2 - 57x + 3$

D) $f'(x) = 48x^3 - 57x^2 + 8x + 3$

2) Let f and g be functions that satisfy: $f(4) = -1$, $g(4) = 3$, $f'(4) = 2$, and $g'(4) = -3$. Find $h'(4)$ for $h(x) = f(x)g(x) - 2f(x) + 7$. 2) _____

A) 6

B) -6

C) 5

D) -5

3) Find $f'(t)$ if $f(t) = 0.4t(5t^2 + 1)$ and simplify. 3) _____

A) $f'(t) = 6t^2 - 0.4$

B) $f'(t) = 6t^2 + 0.4$

C) $f'(t) = 6t^2 + 4$

D) $f'(t) = 6t^2 + 40$

4) Find $f'(t)$ for $f(x) = \frac{2x - 7}{3x - 2}$. 4) _____

A) $\frac{17}{(2x - 7)^2}$

B) $-\frac{17}{(2x - 7)^2}$

C) $-\frac{17}{(3x - 2)^2}$

D) $\frac{17}{(3x - 2)^2}$

5) Find $f'(t)$ for $f(x) = \frac{x}{4x - 6}$ 5) _____

A) $-\frac{6}{(4x - 6)^2}$

B) $-\frac{6}{4x - 6}$

C) $\frac{8x - 6}{(4x - 6)^2}$

D) $-\frac{6x}{(4x - 6)^2}$

6) Find $\frac{dy}{dx}$ for $y = \frac{x^3}{x - 1}$. 6) _____

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

B) $\frac{dy}{dx} = \frac{2x^3 + 3x^2}{(x - 1)^2}$

C) $\frac{dy}{dx} = \frac{2x^3 - 3x^2}{(x - 1)^2}$

D) $\frac{dy}{dx} = \frac{-2x^3 - 3x^2}{(x - 1)^2}$

Provide an appropriate response.

7) Find the derivative of the function $f(x) = \frac{2x - 7}{3x - 2}$ at $x = 2$. 7) _____

A) $-\frac{17}{4}$

B) $-\frac{17}{16}$

C) $\frac{17}{4}$

D) $\frac{17}{16}$

Answer Key

Testname: PRACTICE02

- 1) D
- 2) C
- 3) B
- 4) D
- 5) A
- 6) C
- 7) D