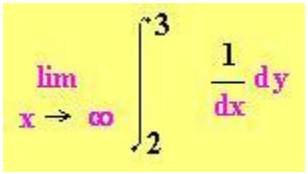

THE PRODUCT AND THE QUOTIENT RULE

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Problem 1:

For $f(x)=(x^3-2)(2x+1)$, find $f'(x)$

Method 1 - Use the *Basic Differentiation Rules (Simple Power Rule with Constant Multiple Rule)*

Method 2 - Use the *Product Rule*

Problem 2:

For $f(x)=4(x^3-2x+1)$, find $f'(x)$

Method 1 - Use the *Basic Differentiation Rules (Simple Power Rule with Constant Multiple Rule)*

Method 2 - Use the *Basic Differentiation Rules (Constant Multiple Rule and Simple Power Rule with Constant Multiple Rule)*

Method 3 - Use the *Product Rule*

Problem 3:

Differentiate $f(x)=\dfrac{3x^2-7x+2}{x}$. Write the derivative as ONE SINGLE fraction.

Method 1 - Use the *Basic Differentiation Rules (Simple Power Rule with Constant Multiple Rule)*

Method 2 - Use the *Quotient Rule*

Method 3 - Use the *Product Rule*

Problem 4:

Find the derivative of $f(x)=\dfrac{4x^3+5x-9}{2}$ written as ONE SINGLE fraction.

Method 1 - Use the *Basic Differentiation Rules - Simple Power Rule with Constant Multiple Rule*

Method 2 - Use the *Quotient Rule*

Problem 5:

Find the derivative of $g(x) = \frac{2x - x^2}{\sqrt{x}} = \frac{2x - x^2}{x^{1/2}}$ using the *Quotient Rule*. Write your answer without negative exponents.

SOLUTIONS

You can find detailed solutions below the link for this problem set!

1. $f'(x) = 8x^3 + 3x^2 - 4$
2. $f'(x) = 12x^2 - 8$
3. $f'(x) = \frac{3x^2 - 2}{x^2}$
4. $f'(x) = \frac{12x^2 + 5}{2}$
5. $g'(x) = \frac{2 - 3x}{2x^{1/2}}$