Class Drill CD05: Rewriting $f(x)$ in *Power Function Form*, then Differentiating (Section 2.5)

Part 1: Rewriting Functions in Different Forms

Fill in the empty spaces in this table.

Simplified form	=	Separate constants	=	Power Function Form. That is, a sum of terms of form *constant* × *power function* That is, $ax^p + bx^q$
$f(x) = \frac{5}{x^2} + \frac{9}{x}$	=	$5\left(\frac{1}{x^2}\right) + 9\left(\frac{1}{x}\right)$	=	$5x^{-2} + 9x^{-1}$
$f(x) = \frac{1.2}{\sqrt{x}} - \frac{0.6}{\sqrt[3]{x^2}}$	=	$1.2\left(\frac{1}{\sqrt{x}}\right) - 0.6\left(\frac{1}{\sqrt[3]{x^2}}\right)$	=	$1.2x^{-1/2} - 0.6x^{-2/3}$
$f(x) = \frac{5}{\sqrt[3]{x}} - \frac{6}{x^{1/2}}$	=		=	
	=		=	$-10x^{-3} - 9x^{-2}$
$f(x) = \frac{7\sqrt[3]{x}}{5} + \frac{3}{11x^{2/5}}$	=		=	
	=		=	$\frac{7}{15}x^{-2/3} - \frac{6}{55}x^{-7/5}$

Part 2 is on back ➔

Part 2: Finding a Derivative Using Sum Rule, Constant Multiple Rule, Power Rule

$$f(x) = \frac{7\sqrt[3]{x}}{5} + \frac{3}{11x^{2/5}}$$

(A) Rewrite $f(x)$ in ***power function form***.
That is, rewrite it as a sum of terms of the form *constant* × *power function*. That is, $ax^p + bx^q$.
(**Hint:** You have already done this part on the previous page!)

(B) Find $f'(x)$.

- Use the techniques of Section 2.5. (That is, DO NOT use the Definition of the Derivative.)
- Show all details clearly and use correct notation.
- Simplify your final answer, and rewrite it so that it does not have any negative exponents. (**Hint:** You have already done the necessary simplifying on the previous page!)