

MY FLIP BOOK of Derivatives

⑧ $\frac{d}{dx} \left[\frac{\sqrt{x+1}}{2x-3} \right]$ $(x+1)^{1/2}$

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

$$= \frac{\frac{1}{2}(x+1)^{-1/2} [2x-3 - (x+1)(2)]}{(2x-3)^2}$$

$$= \frac{2x-3-4x+2\sqrt{x+2} + 2\sqrt{x+2}}{2(x+1)^2}$$

$$= \frac{-2x-1+4\sqrt{x+2}}{2(x+1)^2}$$

$$= \frac{6x+9}{2\sqrt{x+2}}$$

$$(x) = (2x+3)^{1/2} \quad 2x+1+2$$

$$= \frac{1}{\sqrt{2x+3}}$$



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DERIVATIVES

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MY FLIP BOOK OF DERIVATIVES

This activity contains 10 symbolic expressions for differentiation. Teachers establish the functions and ask students to complete all 10 derivatives or any portion, depending upon the amount of class time you have allotted for practice.

Teaching Suggestions:

- Students assemble the mini-flip book and keep with them each day, this can be a daily warm up as you progress through the unit on derivatives.
- Assign two functions for all odd or even pages or have them work all 10 problems depending on time.
- Have students create functions to differentiate and work with a partner or independently to review the rules of differentiation.

Directions: Copy this page on card stock . Cut apart and give one to each student to assemble the flip book.



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Directions: Cut out each page and stack in numerical order. Place between the cover page and staple on the side.

$$1. \frac{d}{dx} [f(x) + g(x)]$$

$$2. \frac{d}{dx} [f(x) - g(x)]$$

$$3. \frac{d}{dx} [f(x) \cdot g(x)]$$

$$4. \frac{d}{dx} \left[\frac{f(x)}{g(x)} \right]$$

$$5. \frac{d}{dx} \left[\frac{g(x)}{f(x)} \right]$$

$$6. \frac{d}{dx} [f(g(x))]$$

$$7. \frac{d}{dx} [g(f(x))]$$

$$8. \frac{d}{dx} \sqrt{f(x)}$$

$$9. \frac{d}{dx} \ln[f(x) \cdot g(x)]$$

$$10. \frac{d}{dx} [e^{f(x)} \cdot g(x)]$$

Sample Set: Let $f(x) = 2x^3 + 5$ and $g(x) = \sin x$

1. $y' = 6x^2 + \cos x$

2. $y' = 6x^2 - \cos x$

3. $y' = (2x^3 + 5) \cos x + 6x^2 \sin x$

4. $y' = \frac{6x^2 \sin x - (2x^3 + 5) \cos x}{\sin^2 x}$

5. $y' = \frac{(2x^3 + 5) \cos x - 6x^2 \sin x}{(2x^3 + 5)^2}$

6. $y' = 6 \sin^2 x + \cos x$

7. $y' = 6x^2 \cos(2x^3 + 5)$

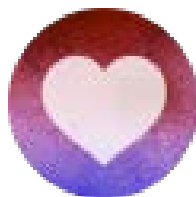
8. $y' = \frac{3x^2}{\sqrt{2x^3 + 5}}$

9. $y' = \frac{6x^2}{2x^3 + 5} + \cot x$

10. $y' = e^{2x^3 + 5}(\cos x) + (6x^2)e^{2x^3 + 5}(\sin x)$

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