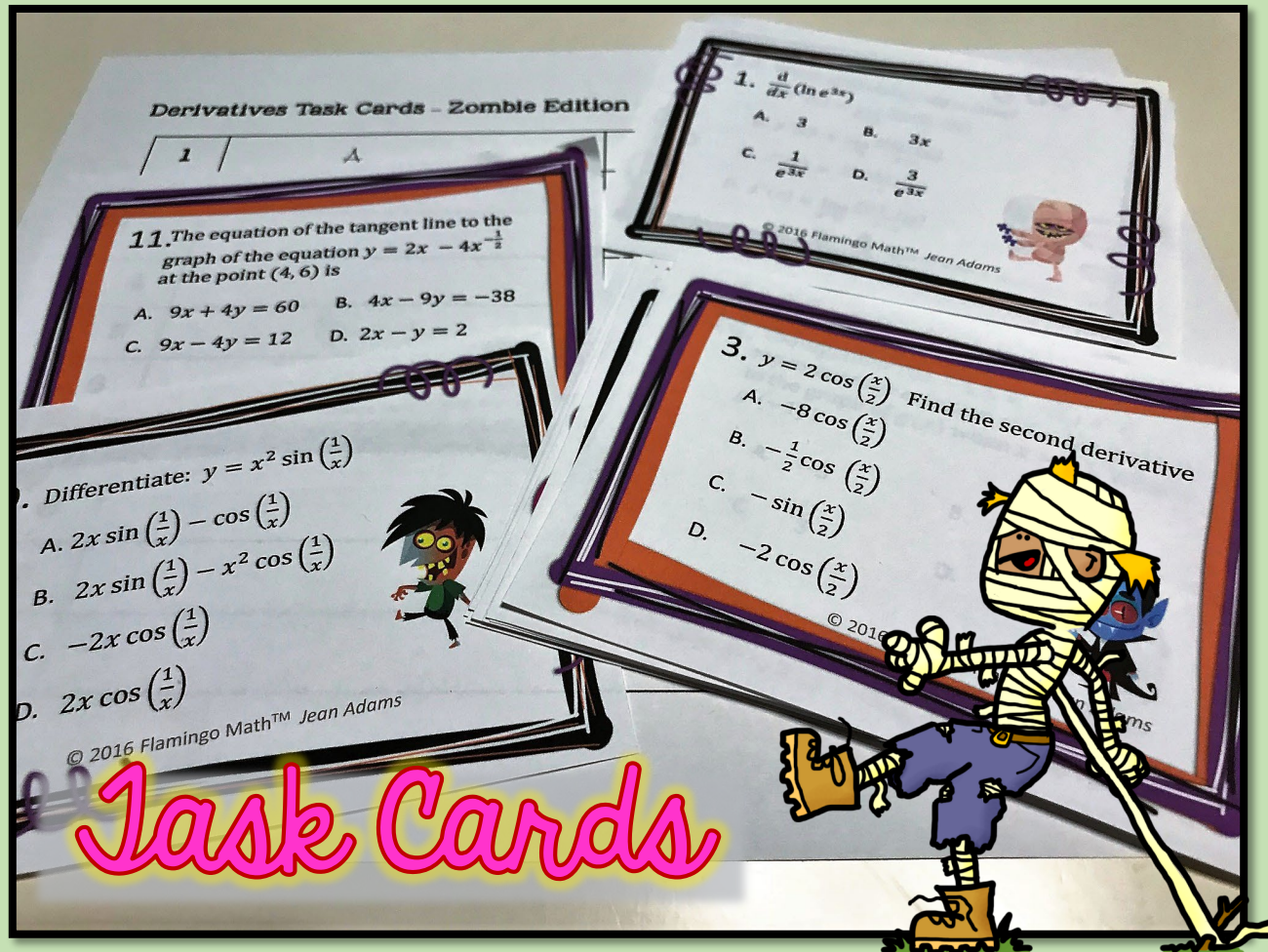


Derivative Rules Zombie Edition



Derivatives Task Cards - Zombie Edition

NAME _____

1	
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10	

11

1. $\frac{d}{dx}(\ln e^{3x})$

- A. 3 B. $-3x$
C. $\frac{1}{e^{3x}}$ D. $\frac{3}{e^{3x}}$

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2. If $f(x) = (x^2 - 2x - 1)^{\frac{2}{3}}$, then

- A. -2 B. $-\frac{4}{3}$
C. $-\frac{2}{3}$ D. $\frac{4}{3}$

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9. Differentiate: $y = x^2 \sin\left(\frac{1}{x}\right)$

- A. $2x \sin\left(\frac{1}{x}\right) - \cos\left(\frac{1}{x}\right)$
B. $2x \sin\left(\frac{1}{x}\right) - x^2 \cos\left(\frac{1}{x}\right)$
C. $-2x \cos\left(\frac{1}{x}\right)$
D. $2x \cos\left(\frac{1}{x}\right)$

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10. Find the derivative of $y = 3x^{\frac{2}{3}} - 4x^{\frac{1}{2}} - 5$

- A. $\frac{2}{x^{1/3}} - \frac{2}{x^{1/2}}$ B. $\frac{3}{x^{1/3}} - \frac{2}{x^{1/2}}$
C. $2x^{1/3} - 2x^{-1/2}$ D. $\frac{2}{x^{1/3}} - \frac{2}{x^{1/2}} - 5$

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3. $y = 2 \cos\left(\frac{x}{2}\right)$ Find the second derivative

- A. $-8 \cos\left(\frac{x}{2}\right)$
B. $-\frac{1}{2} \cos\left(\frac{x}{2}\right)$



4. If $f(x) = \frac{e^{2x}}{2x}$, then $f'(x) =$

- A. $\frac{e^{2x}(1-2x)}{2x^2}$ B. $\frac{e^{2x}}{2x^2}$
C. $\frac{e^{2x}(2x-1)}{2x^2}$ D. e^{2x}

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11. The equation of the tangent line to the graph of the equation $y = 2x - 4x^{-\frac{1}{2}}$ at the point (4, 6) is

- A. $9x + 4y = 60$ B. $4x - 9y = -38$
C. $9x - 4y = 12$ D. $2x - y = 2$

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12. Which of the following is false?

- A. $f'(c) = \lim_{h \rightarrow 0} \frac{f(c+h)-f(c)}{h}$
B. $f'(c) = \lim_{x \rightarrow c} \frac{f(x)-f(c)}{x-c}$
C. $f'(c) = \frac{f(c+h)-f(c)}{c}$
D. $f'(c) = \lim_{x \rightarrow c} \frac{f(c)-f(x)}{c-x}$

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5. For what point of the graph of $y = x e^{-2x}$ is the tangent line horizontal?

- A. $\left(\frac{1}{2}, \frac{1}{2}e^{-1}\right)$
B. $\left(\frac{1}{2}, \frac{1}{2}e\right)$
C. $\left(-\frac{1}{2}, \frac{1}{2}e\right)$
D. $\left(-\frac{1}{2}, \frac{1}{2}e^{-1}\right)$

6. The $\lim_{h \rightarrow 0} \frac{\tan 4(x+h) - \tan 4x}{h}$ is

- A. $4 \cot(4x)$ B. $4 \sec^2(4x)$
C. $\sec^2(4x)$ D. Does not exist



17. If $f(x) = 2x^3$, then the average rate of change of f on the interval $[0, 2]$ is

- A. 4 B. 12
C. 8 D. 16

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18. If $y = \ln(\sec x)$ then $\frac{dy}{dx} =$

- A. $\cos x$ B. $\cos x \cot x$
C. $\tan x$ D. $\frac{\sec x \tan x}{x}$

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19. If $f(x) = \frac{x}{e^{-x^2}}$, then $f'(x)$ equals

- A. $(1+x^2)e^{-x^2}$ B. $(1-2x^2)e^{-x^2}$
C. $(1-x^2)e^{-x^2}$ D. $(2-x^2)e^{-x^2}$

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20. If $f(x) = \ln\left(\frac{e^x+1}{e^x-1}\right)$, then $f'(\ln 2)$ equals

- A. $\frac{2}{3}$ B. $\frac{e^{\ln 2}}{2+e^{\ln 2}}$
C. $\frac{4}{3}$ D. $-\frac{4}{3}$

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13. If $y = \sin^3(1-2x)$, find dy/dx

- A. $-6 \sin^2(1-2x) \cos(1-2x)$
B. $-6 \cos^2(1-2x)$
C. $1-2x$
D. $-2x$

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14. The equation $10x - 0.5 = -(y+4)$ represents the equation of the tangent line to the graph of $g(x)$ when $x = -1$. What is $g'(-1)$?

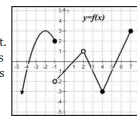
- A. -5 B. 10
C. 3 D. 7

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16. If $f(x) = (\sin 3x)(\cos 4x)$, then $f'\left(\frac{\pi}{12}\right)$ is

- A. $\sqrt{2} - \sqrt{6}$ B. $\frac{3\sqrt{2}-6}{4}$
C. $\frac{3\sqrt{2}}{4} + 6$ D. $\frac{3\sqrt{2}}{4} - 6$

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at right.
g values
continuous

II and III
D. III Only

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