Directions: Begin at any cell and write it #1. Take the derivative. Search for your answer. When you find it, mark it #2. Continue in this manner until you complete the circuit. Additional paper may be necessary! No technology is needed!

Answer: -7

#_____: $\dfrac{4\sqrt{x}}{x^2-2}$

Answer: $2x\cos x + 2\sin x$

#_____: $(x^3+x+1)(x^4+x^2+1)$

Answer: $\dfrac{-5x+2}{x^3}$

#_____: $\dfrac{d}{dx}\left(g(x)\cdot h(x)\right)$ if $x=5$ given

x	$g(x)$	$g'(x)$	$h(x)$	$h'(x)$
5	-3	6	3	-2

Answer: 24

#_____: $\dfrac{\sin x}{\cos x}$

Answer: $\dfrac{5}{8}$

#_____: Let $f(-1)=3$ and $f'(-1)=5$. Let $g(x)=2x^3$. If $h(x)=\dfrac{f(x)}{g(x)}$, find $h'(-1)$.

Answer: $\dfrac{-6x^{3/2} - 4x^{-1/2}}{x^4 - 4x^2 + 4}$

#_____: Let $f(-1) = 3$ and $f'(-1) = 5$. Let $g(x) = \dfrac{1}{x}$. If $h(x) = f(x) \cdot g(x)$, find $h'(-1)$.

Answer: -2

#_____: $2x \sin x$

Answer: $7x^6 + 10x^4 + 4x^3 + 6x^2 + 2x + 1$

#_____: $\dfrac{x^2 + 5x - 1}{x^2}$

Answer: $\dfrac{1}{\cos^2 x}$ or $\sec^2 x$

#_____: $\dfrac{d}{dx}\left(\dfrac{f(x)}{g(x)}\right)$ if $x = -1$ given

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
-1	3	1	4	-2

Answer: -8

#_____: Let $f(-1) = 3$ and $f'(-1) = 5$. Let $g(x) = \dfrac{1}{x}$. If $h(x) = \dfrac{f(x)}{g(x)}$, find $h'(-1)$.