Unit 4 – L'Hospital's Rule

For this circuit, you will use the table and graph on the attached sheet to answer the various questions.

Answer: 6 #1___Let $k(x)=f(x)+g(x)$. Find $k'(1)$.	Answer: $\frac{1}{3}$ #_____ Evaluate $p'(1)$, given that $p(x)=4(f(x)+j(x))$
Answer: $-\frac{2}{3}$ #_____ Find $\frac{d}{dx}\left[\frac{x^2}{h(x)}\right]\Big\|_{x=1}$	Answer: -36 #_____ Find $\frac{d}{dx}\left[h\left(f(2x+1)\right)\right]\Big\|_{x=2}$
Answer: 1 #_____ If $m(x)=h(j(x))$, find $m'(5)$.	Answer: -2 #_____ If $k(x)=6f(x)(h(x)-1)$, find $k'(5)$.
Answer: -1 #_____ Find $\frac{d}{dx}\left[2x\left(g(x)\right)\right]\Big\|_{x=5}$	Answer: -5 #_____ Find $\frac{d}{dx}\left[\frac{1}{2}f(x)+2g(x)\right]\Big\|_{x=2}$ =

Answer: 0

#_____ Let $m(x)=\dfrac{j(x)}{h(x)}$. Find $m'(5)$.

Answer: -3

#_____ Evaluate $k'(1)$, given $k(x)=\dfrac{h(x)+6x}{9}$.

Answer: 4

#_____ Find $\dfrac{d}{dx}\left[f(x)g(x)\right]\Big|_{x=1}$

Answer: -24

#_____ If $m(x)=7h(x)-5f(x)$, find $m'(5)$.

Answer: -9

#_____ Let $k(x)=x^3-2g(x)$. Find $k'(1)$.

Answer: -7

#_____ Find $\dfrac{d}{dx}\left[\dfrac{g(x)}{f(x)}\right]\Big|_{x=2}$ =

Answer: 3

#_____ Find $\dfrac{d}{dx}\left[h(x)j(x)\right]\Big|_{x=1}$

Answer: $-\dfrac{2}{9}$

#_____ If $k(x)=f\left(g(x)\right)$, what is the slope of the graph of $y=k(x)$ at $x=1$?

The table below gives values of the differentiable functions $f(x)$ and $g(x)$ and their derivatives $f'(x)$ and $g'(x)$ at selected values of x.

x	f	f'	g	g'
1	3	–8	2	3
2	–6	–12	$-\frac{1}{2}$	5
5	1	$\frac{1}{3}$	8	$-\frac{5}{2}$

The graph below shows $y=h(x)$ and $y=j(x)$. The solid graph, $y=h(x)$, consists of 2 linear pieces. The dashed graph, $y=j(x)$, consists of 2 linear pieces.