Good afternoon
Calculus mini lesson will start at 12

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
1	2	2	3	-2
2	4	0	1	0
3	2	$-\frac{3}{2}$	3	$\frac{3}{2}$
4	1	-1	4	1

Part 1) Given $h_1(x) = f(x) \cdot g(x)$, find $h_1'(3)$

Part 2) Given $h_2(x) = \frac{f(x)}{g(x)}$, find $h_2'(1)$

Part 3) Given $h_3(x) = (f(x))^2$, find $h_3'(3)$

~~Part 4) Given $h_4(x) = f(g(x))$, find $h_4'(4)$~~

1.3 $h = (f(x))^2$

$h'(x) = 2(f(x))^1 \cdot f'(x)$

$h'(3) = 2(f(3)) \cdot f'(3)$

$2(2) \cdot -\frac{3}{2}$

$= -6$

1.1 $h'(3) = f'(3)g(3) + f(3)g'(3)$

$-\frac{3}{2} \cdot 3 + 2 \cdot \frac{3}{2}$

$-\frac{9}{2} + 3 = -1.5$

$-4.5 + 3$

1)

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
1	2	2	3	−2
2	4	0	1	0
3	2	$-\frac{3}{2}$	3	$\frac{3}{2}$
4	1	−1	4	1

Part 1) Given $h_1(x) = f(x) \cdot g(x)$, find $h_1'(3)$

Part 2) Given $h_2(x) = \frac{f(x)}{g(x)}$, find $h_2'(1)$

Part 3) Given $h_3(x) = (f(x))^2$, find $h_3'(3)$

Part 4) Given $h_4(x) = f(g(x))$, find $h_4'(4)$

1.4

$h(x) = f(g(x))$

$h'(x) = f'(g(x)) \cdot g'(x)$ Chain rule

$h'(4) = f'(g(4)) \cdot g'(4)$

$f'(4)\, g'(4)$

$-1 \cdot 1 = -1$

KEY

2) $h_1'(3) = \frac{1}{2}$

$h_2'(3) = \frac{1}{2}$

$h_3'(3) = 1$

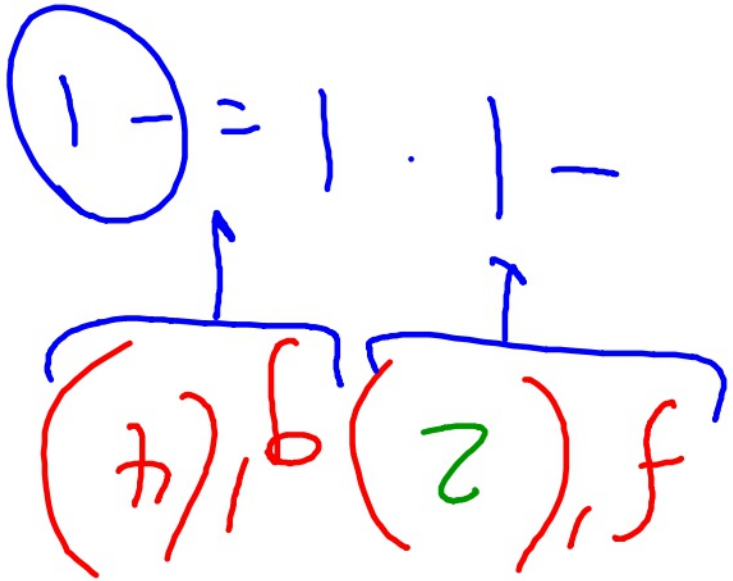
$h_4'(4) = -1$

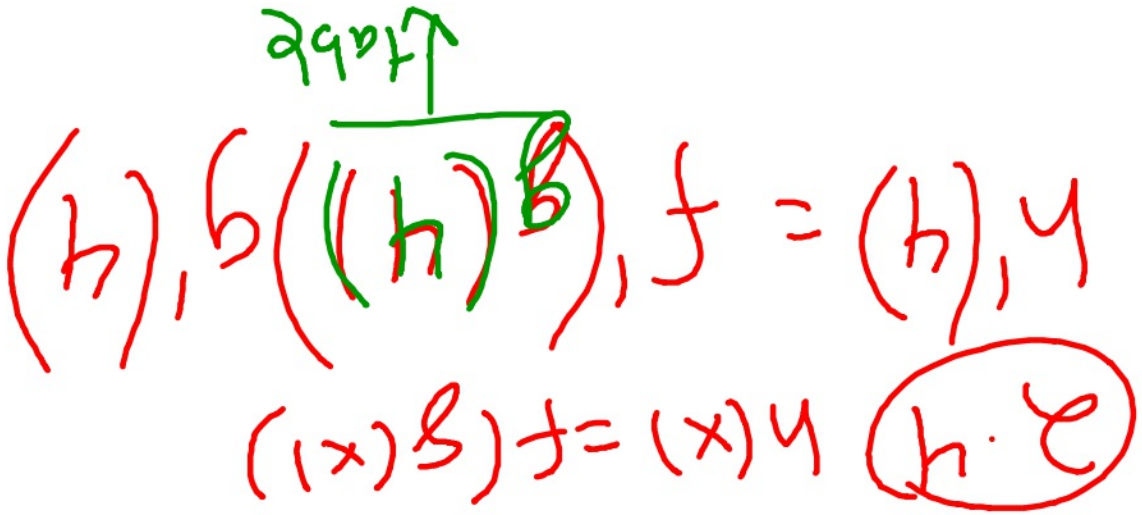
3) $h_1'(4) = -1$

$h_2'(3) = \frac{9}{32}$

$h_3'(1) = -12$

$h_4'(2) = 0$





KEY

2) $h_1'(3) = \frac{1}{2}$

$h_2'(3) = \frac{1}{2}$

$h_3'(3) = 1$

$h_4'(4) = -1$

3) $h_1'(4) = -1$

$h_2'(3) = \frac{9}{32}$

$h_3'(1) = -12$

$h_4'(2) = 0$

HW

keep working on handout from yesterday

choose 6 from each of the 3 sections