

1) Use the table to complete the problems below.

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
3	5	4	2	7
5	8	6	-6	-4

a) $h(x) = (f(x))^2$, find $h'(3)$.

b) $h(x) = 3g(f(x))$, find $h'(3)$.

c) $h(x) = g(g(x))$, find $h'(5)$.

2) Factor each expression completely.

a) $5(2x+1)^2 + (5x-6) \cdot 2(2x+1) \cdot 2$

b) $4(x+5)^3(x-1)^2 + (x+5)^4 \cdot 2(x-1)$

c) $3(4x+5)^2 \cdot 4(5x+1)^2 + (4x+5)^3 \cdot 2(5x+1) \cdot 5$

3) Let $f(x) = \frac{(x+3)^2}{(x-1)}$.

a) Find $f'(x)$.

b) Write your answer to part a with a factored numerator.

c) Get creative! Find one more way to write your answer to part a. There are no rules as long as it's mathematically correct!