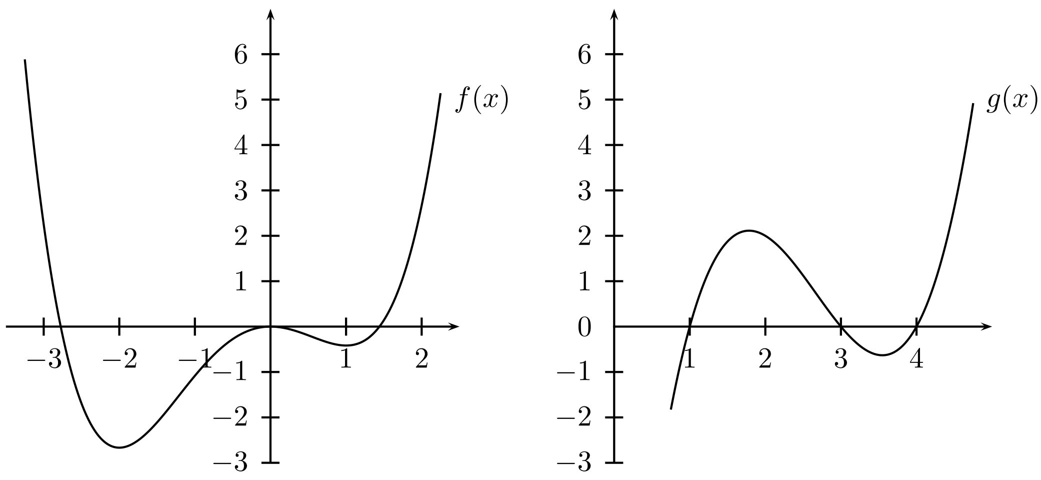
8. [10 points] The graphs of two functions f and g are shown below, along with a table of values for a function h.



x	-3	-2	-1	0	1	2	3
$h(x)$	15	2	-5	-6	-1	10	27

a. [4 points] Compute each of the following.

- $h(g(1)) =$ ______________________

Solution: $h(g(1)) = h(0) = -6$

- $f(1 + h(1)) =$ ______________________

Solution: $f(1 + h(1)) = f(1 + (-1)) = f(0) = 0$

b. [3 points] There exists a number B so that $f'(x) = g(x + B)$. Find B.

Solution: Since f is flat at $x = -2$, $x = 0$, and $x = 1$, we know f' has zeroes at these spots. Since g has zeroes at $x = 1$, $x = 3$, and $x = 4$, we need to shift g to the left by 3 to get f'. Thus, $B = 3$.

c. [3 points] Is it possible that $f'' = h$? Briefly justify your answer.

Solution: No. At $x = 1$, f is concave up, so $f''(1) \geq 0$, but $h(1) = -1$.