

YOUR NAME: _____

George Voutsadakis

Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [4 points] Find the average rate of change of $f(x) = \frac{4x}{x-1}$ over $[2, 5]$.

2. [4 points]

(a) If $f(x) = x^2 - x$ and $g(x) = x + 3$, find a formula for $(f \circ g)(x)$. Please, simplify.

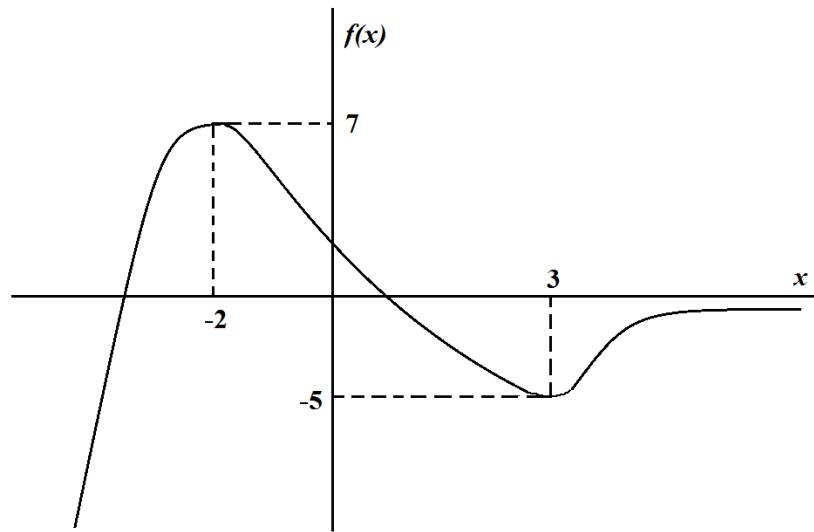
(b) The following table specifies the functions f and g :

x	1	2	3	4	5
$f(x)$	5	4	3	2	1
$g(x)$	7	5	2	4	3

Compute the following, showing all steps:

$$(f \circ g)(3) =$$

$$(g \circ f)(5) =$$



3. [4 points] Consider the function $f(x)$ specified by the graph shown.

(a) Find its domain and its range:

$$\text{Dom}(f) =$$

$$\text{Ran}(f) =$$

(b) Find the intervals over which it is increasing and over which it is decreasing.

(c) Find its local max and min points.

(d) Find the absolute max and min points.