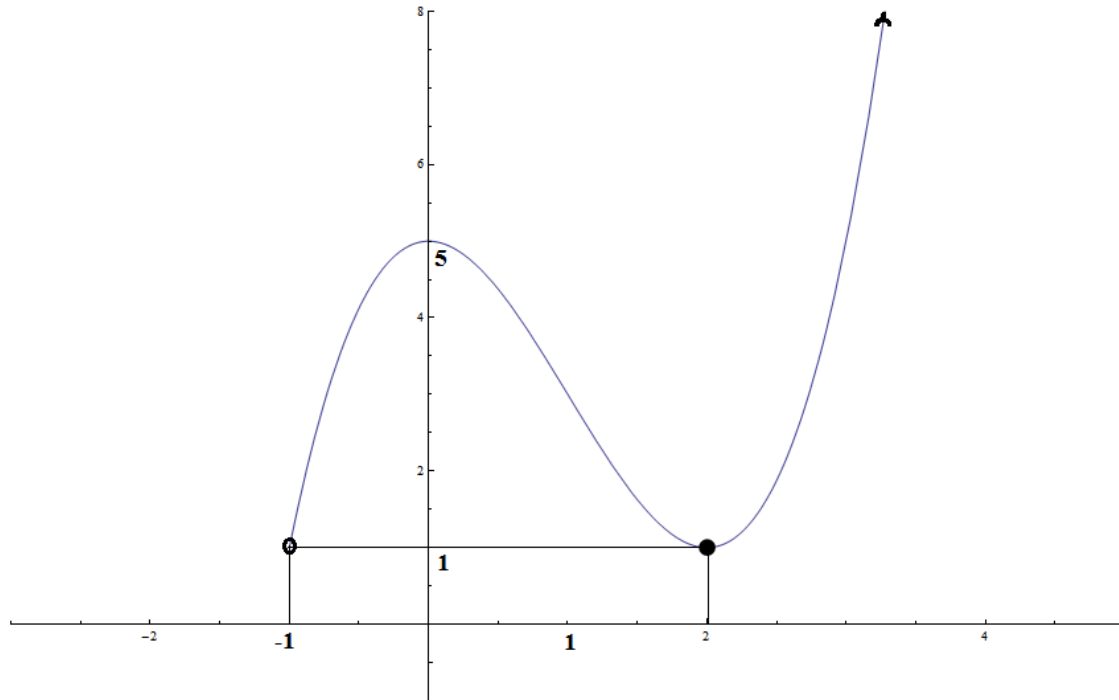Read each problem **very carefully** before starting to solve it and do only what is asked.
Each problem is worth around 5 points. It is necessary to show **all** your work. Correct
answers without explanations are worth 0 points. GOOD LUCK!!

1. [4 points] Consider the function $y = f(x)$ whose graph is shown below.

(a) Find the domain of f.

(b) Find the range of f.

(c) Find the intervals over which f is increasing.

(d) Find the local maxima and the local minima.

(e) Find the absolute maxima and the absolute minima.

2. [8 points]

(a) Let $f(x) = \frac{x}{x-3}$ and $g(x) = 5 - 2x$. Find a formula for $(f \circ g)(x)$.

(b) Let $f(x) = \sqrt{x} + 5$ and $g(x) = x^2 - 15$. Calculate $(f \circ g)(9)$.

(c) Let $f(x) = \frac{1}{7-x}$ and $g(x) = \frac{14}{x-1}$. Showing all steps required, find the domain of $(f \circ g)(x)$.