1. Let

$$
f= \begin{cases}x^{2} & \text { if } x \in \mathbb{R}-\mathbb{Q} \\ 0 & \text { else }\end{cases}
$$

(a) Is $f$ continuous anywhere?
(b) Is $f$ differentiable anywhere?
(c) Is $f$ Riemann integrable on any interval?

