

1. A mathematical function  $f(x)$  has always only one global minimum. TRUE FALSE

2. Local optima occur only where  $f'(x) = 0$ . TRUE FALSE

3. What is **the feasible set** (In connection with constrained optimization)? (Pick *one* answer!)

- A. The set of all points for which the function reaches its optimum.
- B. The set of all points that fulfil the constraints.
- C. The set of all points for which  $f(x) = 0$

1. This is FALSE, since a function can have any number of global minima or maxima. Consider, for example  $\cos(x)$ : This function has global minima ( $f = -1$ ) at  $x = \pi, 3\pi, 5\pi$  etc.)
2. This is also FALSE. It is true that local optima occur where  $f'(x) = 0$ , but they can also occur at points where  $f'(x)$  does not exist.
3. The feasible set is the set of all points that fulfil the constraints.