1. Newton-Raphson's method will always converge to a local minimum. TRUE ☐ FALSE ☒

2. An optimization problem is always convex if f(x) is convex. TRUE ☒ FALSE ☐

3. Consider the level curves of a function f = f(x1,x2) and a constraint h(x1,x2) = 0. At the local optima of f (subject to h), the following holds: (Pick one answer!)

   A. The gradients of f and h are perpendicular ☐
   B. The gradient of h is equal to the zero vector ☐
   C. The gradients of f and h are parallel ☒

4. Stochastic optimization methods can be applied even if the objective function f(x) is non-differentiable. TRUE ☒ FALSE ☐