The student is able to (especially w.r.t. functions of two or three variables):

1. **work with partial derivatives and applications**
   - apply the parametrization of a curve and the tangent vector
   - apply the chain rule (in several forms)
   - calculate a directional derivative, and apply its properties
   - calculate the gradient (vector)
   - apply the relations between gradient and level sets
   - calculate the tangent plane and normal line
   - apply a linearization (standard linear approximation)
   - estimate a change using differentials
   - calculate Taylor polynomials (first and second order, two variables)
   - apply the first and second derivative tests
   - calculate the absolute extreme values on closed bounded regions
   - apply the method of Lagrange multipliers

2. **define and evaluate double and triple integrals over bounded regions**
   - sketch the region and find the limits of integration
   - calculate an iterated integral (by changing the order of integration)
   - define area, volume, mass or the average value as an integral
   - apply polar, cylindrical or spherical coordinate substitutions, or a given transformation