

1. $\frac{\partial F}{\partial y'} = 0$ or $\delta y = 0$

2. $F_y - (F_{y'})' + (F_{y''})'' - (F_{y'''})''' + (F_{y''''})''''$

3. A function, $y(x)$ that satisfies the Euler-Lagrange equation and the imposed boundary conditions is by definition the extremizing function for the integral for which the necessary conditions were derived.

4. $\frac{x^2}{4} - \frac{x}{2} + 2$

5. iii-i-ii-iv

6. A global constraint can never be a differential equation.

7. Function

8. All of the above

9. $\int \lambda(x)g(x, y(x), z(x))dx$

10. $L = pu + \lambda(x)((EAu')' + p) + \Lambda(A - V^*)$