

1. $F - y'F_{y'} = \text{constant}$

2. $F - y'F_{y'} = C$

3. Sign of Term 2 in the integrand should be positive instead of negative in the action integral.

4. Rayleigh's quotient

5. B

6. find the conserved quantities in a system.

7.
$$\frac{\int_0^L EIw''^2 dx}{\int_0^L w'^2 dx}$$

8.
$$\int_{t_1}^{t_2} \left(\frac{1}{2} m \dot{q}^2 - mgq \right) dt$$

9. Invariant under transformation 1 but not 2

10. Energy