

Amritanilayam Stotras

????? ?????? ?????? (????? ??????????????)

□□□□ □□□□□
□□□□□□□□ □□□□□□ □□ □□□□□□□□□□ □□□□□□ □
□□ □□□□□□ □□□□□□□□□□ □□ □□□□□□□□□ □□□□□□
□
□□□□□□□□□□ □□□□□□□□□□ □□□□□□□□□□ □□□□ □□ □

□□□□□
□□ □□□□□
□□ □□□□□ □□□□□□
□□ □□□□□□ □□□□□□
□□ □□□□□ □□□□□ (□□□ □□□□□□□□□□)
□□ □□□□□□ □□□ (□□□□ □□□□□□□□□□)
□□ -□□□□□□□ □□□
□□ □□□□□□□ □□□ (□□□□□ □□□□□□□□□□)
□□ □□□□□□□□□ □□□
□□ -□□□□□□ □□□ (□□□□□ □□□ □□□□□□□□□□)
□□ □□□□□□ □□□
□□ □□□□□□□ □□□ (□□□□□□□ □□□ □□□□□□□□□□)
□□ □□□□□□□ □□□ (□□□□□ □□□ □□□□□□□□□□)
□□ □□□□□□ □□□ (□□□□□ □□□ □□□□□□□□□□)
□□ □□□□ □□□ □□□ (□□□□□□□□□□□□□□□□□□ □□□□
□□□□□□□□□□)
□□ -□□□□□□□□□ □□□
□□ □□□□□□□□□□ □□□ (□□□□□□□ □□□□□□□□□□)
□□ □□□□□□□□ □□□
□□ □□□□□□□□□ □□□
□□ □□□□□□ □□□
□□ □□□□□□ □□□ (□□□□□ □□□□□□□ □□ □□□□□□□□□□)
□□ □□□□□□ □□□ (□□□□□ □□□□□□□□□□)
□□ □□□□□□ □□□ (□□□□□ □□□□□□□□□□)
□□ □□□□□□ □□□ (□□□□□ □□□□ □□□□□□□□□□)
□□ □□□□ □□□ □□□
□□ □□□□□□□□□ □□□ (□□□□□ □□□□□□□□□□)
□□ □□□□□□□ □□□□□□□□□ □□□ □□□

($\int_{a_1}^{a_2} f(x) dx \int_{b_1}^{b_2} g(x) dx$)

$\int_{a_1}^{a_2} f(x) dx \int_{b_1}^{b_2} g(x) dx = \int_{a_1}^{a_2} \int_{b_1}^{b_2} f(x)g(y) dx dy$

($\int_{a_1}^{a_2} f(x) dx \int_{b_1}^{b_2} g(x) dx$)

$\int_{a_1}^{a_2} \int_{b_1}^{b_2} f(x)g(y) dx dy = \int_{a_1}^{a_2} f(x) dx \int_{b_1}^{b_2} g(y) dy$

$\int_{a_1}^{a_2} \int_{b_1}^{b_2} f(x)g(y) dx dy = \int_{a_1}^{a_2} f(x) dx \int_{b_1}^{b_2} g(y) dy$

$\int_{a_1}^{a_2} \int_{b_1}^{b_2} f(x)g(y) dx dy = \int_{a_1}^{a_2} f(x) dx \int_{b_1}^{b_2} g(y) dy$

□□□□ □□□□□□ □ □□ □ □□□□□□□□ □□□□□ □
□□□□□ □□□□ □□□ □□ □ □□□□ □□□□□□ □□□□□ □
□□□ □□□□□□ □ □□ □ □ (□□ . □□ . 4-42)

(□□□ □□□□ □□□□□□□□)

(□□□□□ □□□ □□□□□□□□)

□□□□□ □□□ □□□□□□□□
□□□□ □□□ , □□□□□□ □□□ □□□ , □□□□□□□ □□□ ,
□□□□□□□□□□□ □ □□□□□□□ □□□□□□□□ □
□□□□□□□□ □□□□ □□□□ □□□ □ □□□ □□□□□
□□□□□□□□ □ □□□□□ □□□□□ □□□□□ □ □□□□□□
□□□□□□□□ □ □□□□□ □□□□□ □□□□ □ □□□□□
□□ □□□□ □□□ □□ □ □□□□ □□□□□□ □□□□□□
□□□□□□ □ (□□ . □□ . 10. 24)

□□□□□□ □□□ □□□□□□□□
□□□□ □□□□□ □□□□□□□ □□□□□□ □□□□ □□□□□□
□□□□ □ □□□□□□ □□□□□□□□□□ □□□□□□□□
□□□□ □□□□□□ □□□□ □ □□□□□□□□ □□□□□□□
□□□□□ □□□□□□□□ □□□ □ □□□□□ □□□□□ □□
□□□□□□□□□ □□□□□□□□□□ □□□□□ □ (□□ .
□□ . □□□□□□□□ 10. 30)

□□□□□□ □□□□□□□□
□□□□□ □□□ □□ □□□□ □□□ □□□□□□ □□□
□□□□□□□□□□ □ □□□□□□□ □□□□□□□ □ □□□□□
□□□□ □□□□□ □□□ □ □□□ □□□□ □□□□□□□□ □
□□□□□□ □□□□□ □□□□□ □ □□ □□□□□□□□ □ □□
□□□□□□ □□□□□ □□□□ □ □□ □□ □□ □□□□ □□□□ □
□□□□ □□□□□□ □□□□□ □□□□□ □ (□□ . □□ . 10. 24)

(□□□ □□□□□ □□□ □□□□□)

□□□□□ (□□ □□□□□ □□□□□ , ... □□□□ □□□□ □□□□□□□□
□□□ □□□)

□□□□□□ □□□□□□
□□□□□ □□□□□ □□□□ □□□□□□ □ □□□□□ □□□□□□
□□□□□□□ □
□□□□□□□□ □□□□□□□□□□ □□□□ □□□□ □□□□□□
□

1) (μ_1, μ_2) is a critical point of f if and only if (μ_1, μ_2) satisfies the system of equations

$$\begin{cases} f_{x_1}(\mu_1, \mu_2) = 0 \\ f_{x_2}(\mu_1, \mu_2) = 0 \end{cases}$$
 where $f(x_1, x_2) = \frac{1}{2}x_1^2 + \frac{1}{2}x_2^2 - 2x_1 - 2x_2 + 4$.

2) The Hessian matrix of f at the point (μ_1, μ_2) is

$$H_{f,(\mu_1, \mu_2)} = \begin{pmatrix} f_{x_1 x_1} & f_{x_1 x_2} \\ f_{x_1 x_2} & f_{x_2 x_2} \end{pmatrix} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$
 Since $\det(H_{f,(\mu_1, \mu_2)}) = 1 > 0$ and $f_{x_1 x_1} = 1 > 0$, we conclude that (μ_1, μ_2) is a local minimum.

3) The function f is a convex function because its Hessian matrix is positive definite.

4) The function f is a concave function because its Hessian matrix is positive definite.

5) The function f is a convex function because its Hessian matrix is positive definite.

6) The function f is a concave function because its Hessian matrix is positive definite.

7) (μ_1, μ_2) is a critical point of f if and only if (μ_1, μ_2) satisfies the system of equations

$$\begin{cases} f_{x_1}(\mu_1, \mu_2) = 0 \\ f_{x_2}(\mu_1, \mu_2) = 0 \end{cases}$$

8) The function f is a convex function because its Hessian matrix is positive definite.

9) The function f is a concave function because its Hessian matrix is positive definite.

□□□□ (□□ □□□□ □□□□ , ... □□□□ □□□□ □□□□□□□□
□□ □□)

□□□□ □□□□□□□□ □
□□□□□ □□□□□□ □
□□□□□□ □□□□□ □
□□□□ □
□□□□□□□ □□□ □
□□□□□□ □
□□□□□ □
□□□□□□ □
□□□□□□□ □

□□□□□□□ □□□□□□□□□□
□□ □□□□□□□□ □□□ □□□ □□□□ □□□□□□□□
□□□□ □□□□ □ □□□□□ □□□□□□□□ □□□□□□ □ □□□□□□
□□□□□ □□□□□ □□□□□□□□□□ -□□□□□□ □□□□□ □□□□□□□
□□□□□□□□ □ □□□□□□ □□□□□□ □□□□□□□□□□□□
□□□□□ □□□□□□ □□□□□ □□□□□□□□□□□□ □
□□□□□□□□□ □□□□□□ □□□□□ □□□□□□□□□□□□
□□□□□□ □□□□□□ □□□□□□ □□□□□□ □ □ □□□□□□□
□ □□□□□ □□□□□□□□□ □□□ □□□□ □□□□□□
□□□□□□□□ □ □□□□□□ □ (□□ . □□ . 3.4.11)

□□□□□□ □□□□□□□□□□
□□ □ □□□□□□ □□□□ □□□□□□□ □□□□□□□
□□□□□□□ □□□□□□□ □ □□□□□□□□ □□□□□
□□□□□□□□□ □□□□ □□□□ □□□□□□□□ □

□□□□□ □□□□□□□ □□□□ -□□ □□□□ □□□□□ □
□□□□ □□□□□□ □□ □□□□□□ □ □□□□□ □□□□□□□□
□□□□□ □□□□□ □□□□□ -□□□□□□□□□□ □□□□□
□□□□□□□□ □ □□□□□ □□□□□□ □□□□□□
□□□□□□□□□ □□ □□□□□ □□□□□ □□□□ □□□□
□□□□□□□□□ □

□□□□□□□ □□□□□□□□□ □□□□□□□□□□□□□□□□□
□□□□□□□ □ □□□□□□ □□□□□□□□ □□□□□

