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BS-Math

Quiz # 02

Real analysis - II



Q No 1

Discuss the Convergence
and divergence of
the Integral

$$\int_2^3 \frac{1}{x^2} dx$$

$$= \int x^{-2} dx$$

$$= \frac{-2+1}{x}$$

$$= \frac{-1}{x}$$

$$= -\frac{1}{x}$$

Apply Integrate

$$= \int -\frac{1}{x} \Big|_{-2}^3$$

$$= \frac{-1}{(-2)} + \frac{1}{3}$$

$$= \frac{1}{2} + \frac{1}{3}$$

$$= \frac{3+2}{6} = \frac{5}{6}$$

So it is diverges.