

MATHEMATICS JEE ADVANCED 2024 MOCK 3

$$\textcircled{1} \quad y \cos\left(\frac{y}{x}\right) \left(x^k d\left(\frac{y}{x}\right)\right) + x^k \sin\left(\frac{y}{x}\right) d(xy) = 0$$

$$\int \cos\left(\frac{y}{x}\right) d\left(\frac{y}{x}\right) + \int \frac{1}{xy} d(xy) = 0$$

$$\ln\left(\sin\left(\frac{y}{x}\right)\right) + \ln xy = c$$

$$xy \sin\left(\frac{y}{x}\right) = c = \frac{\pi}{2}$$

- 1.
2. <https://youtu.be/-uLvTcR6NjI> Timestamp 09:00
3. <https://youtu.be/wuex1TL8siw> Timestamp 12:45
4. https://youtu.be/UQbutVce2_s
5. <https://youtu.be/VSS4h0pQmOg>
6. <https://www.youtube.com/watch?v=5iHgEDz3C4s> Timestamp 3:15
7. <https://youtu.be/Tow2R8eb9gc> Q2
<https://youtu.be/ARSIYcfWhwk> Timestamp 10:25
8. <https://youtu.be/nHaQnbE0PGg> Time 1:12:00
9. <https://youtu.be/adzGf91zBIY>
10. <https://youtu.be/84SUS1ig3RM>
11. <https://youtu.be/azFO9GMicRQ> Timestamp 1:20:14
12. https://youtu.be/XD8-y8pT_da Timestamp 9:10

$$br = \sqrt{\frac{r^4 + r^2 + 2r^2 + r^2 + 1 + 2r + r^2}{r^2(r+1)^2}}$$

$$= \sqrt{\frac{r^4 + 2r^2 + 3r^2 + 2r + 1}{r^2(r+1)^2}}$$

$$= \sqrt{\frac{r^2 + \frac{1}{r} + \frac{2}{r} + 2r + \frac{2}{r} + 3 - 2}{(r+1)^2}} = \sqrt{\frac{\left(r + \frac{1}{r}\right)^2 + 2\left(r + \frac{1}{r}\right) + 1}{(r+1)^2}}$$

$$= \sqrt{\frac{\left(r + \frac{1}{r} + 1\right)^2}{(r+1)^2}} = \frac{r^2 + r + 1}{r(r+1)}$$

$$br = 1 + \frac{1}{r} - \frac{1}{r+1}$$

14. <https://youtu.be/42QW0fSYOi0>
- 15-16. https://youtu.be/XL9J_3CtXu4
- 17-18. <https://youtu.be/-UgmvWrrx-I>

MATHSMERIZING