

Integration Bee Round 1

Seth, wordslinger, mon

December 23, 2021

Contents

1. $\frac{x^{e-1}}{e-1}$
2. $\frac{\pi}{2^{419}} \cdot \binom{420}{210}$
- 3.
4. $\frac{\pi}{4}$
- 5.
- 6.
- 7.
- 8.
- 9.
10. 2G
11. $\frac{2011!}{2010^{2012}}$
- 12.
- 13.
- 14.
15. $x - \tan x + \sec x + C$
16. $\frac{3\pi}{8}$

17.

18. $2 \left(\frac{\sqrt{x}}{2} \sqrt{x-1} - \frac{1}{2} \ln |\sqrt{x-1} + \sqrt{x}| \right) + C$

19.

20. $\frac{x}{2} \sqrt{x^2-1} - \frac{1}{2} \ln |\sqrt{x^2-1} + x| + c$

21.

22.

23.

24.

25. $\frac{\pi^2}{4}$

26.

27. $\frac{\pi}{2be^{ab}}$

28.

29. $\frac{1}{e-1}$

30.

31. $\frac{\pi^2}{6}$

32. $\frac{\pi}{2(b-a)}$

33.

34. $4 \ln^2 (1 + \sqrt{2})$

35.

36.

37. $0 + C$

38.

$$39. \frac{1}{\sqrt{2} \arctan \left(\frac{\tan^2 x - 1}{\sqrt{2} \tan x} \right)}$$

$$40. \frac{\pi}{e^{\frac{\pi}{2}} + e^{-\frac{\pi}{2}}}$$