THE UK UNIVERSITY INTEGRATION BEE 2022/23

$$\int$$

MIT Tiebreaker Mark Scheme

Monday, 12 December 2022

Sponsored by

Jane Street

1. $\sin(1)$
2. $\dfrac{x^{e-1}}{e-1}$
3. e
4. e^{e^x}
5. $\ln(4)$
6. $\dfrac{\ln 2}{a}$
7. 0
8. $\dfrac{\pi}{4}$
9. $\dfrac{\pi^2}{4}$
10. $\dfrac{\pi}{4}\ln(3)$
11. $\ln x + \ln 2 \log\log x$
12. $\dfrac{\sqrt{\pi}}{2}$
13. $-\dfrac{\pi^2}{6}$
14. $\dfrac{\pi^2}{4}$
15. $4\left(\sin\dfrac{x}{4} - \cos\dfrac{x}{4}\right)$
16. $2 - \dfrac{\pi^2}{6}$
17. $n!x - n!\log\left(1 + x + ... + x^n/n!\right)$
18. π
19. $\sec x + \tan x$
20. $\dfrac{1}{e-1}$
21. $\ln 6$
22. $\dfrac{\pi}{2^{2021}}\dbinom{2022}{1011}$
23. $-2x\log 2$
24. 0
25. 4
26. $\dfrac{1}{2}$

27. $\frac{1}{2}\ln^2(\ln(x))$
28. $\frac{\ln 2}{2}$
29. $\frac{\pi}{4}$
30. $\frac{\pi}{4}$