

SwInBee 2026

Name: _____

Score: _____

Instructions

1. Duration: 50 minutes.
2. Record your answers on this answer sheet.
3. No materials allowed besides pens and pencils. Paper will be supplied for rough working.
4. No partial marks awarded. This includes the “+ C” for indefinite integrals: if an appropriate constant is not included then you will get zero.

Integrals

1. $\int \frac{x^{2025}}{1 + x^{2026}} dx$

2. $\int \frac{e^{2x} - 1}{e^x} dx$

3. $\int \sin x e^{\cos x} dx$

4. $\int \frac{x^3 - 1}{x - 1} dx$

5. $\int \sin^2(3x) dx$

6. $\int \frac{dx}{x^2 + 6x + 13}$

7. $\int x^2 e^{-x} dx$

8. $\int \sin(\ln x) dx$

9. $\int \frac{x^2}{x^2 - 4} dx$

10. $\int \frac{\sqrt{x}}{1+x} dx$

11. $\int \frac{dx}{1 + \sin x}$

12. $\int x \arctan x dx$

13. $\int \cos^5 x dx$

14. $\int \frac{xe^x}{(1+x)^2} dx$

15. $\int \frac{dx}{e^x + e^{-x}}$

16. $\int_0^{\pi/2} \frac{\sin^{2026} x}{\sin^{2026} x + \cos^{2026} x} dx$

17. $\int_{-1}^1 \left(x^5 e^{x^2} + \frac{x}{1+x^4} + x^2 \right) dx$

18. $\int_0^\pi \frac{x \sin x}{1 + \cos^2 x} dx$

19. $\int e^x \left(\frac{1}{x} - \frac{1}{x^2} \right) dx$

20. $\int \frac{x^2 + 1}{x^4 + 1} dx$