

Calculus - Hustle
MAΘ National Convention 2013
Answer Key

1. 0

2. $\frac{1}{2}$ (or equivalent)

3. $\frac{1}{5}$ (or equivalent)

4. $3x^2 \sin(x^6)$

5. 45π

6. $\ln(4/3)$ (or simplified equivalent)

7. $\frac{\pi}{3} + \frac{\sqrt{3}}{2}$ (or equivalent)

8. 2

9. $-23/9$ (must be a fraction)

10. 128

11. $\frac{-3x^2 \cos(4x)}{4} + \frac{3x \sin(4x)}{8} + \frac{3 \cos(4x)}{32} + x \ln(x) - x + C$ (or equivalent)

12. 1

13. $\frac{A}{6} \sqrt{\frac{A}{6}}$

14. $5/3$ (or equivalent)

15. $\frac{1}{4}$ (or equivalent)

16. $-1/2$ (or equivalent)

17. $5/3$ (or equivalent)

18. $23/4$ (or equivalent)

19. 2

20. $32/3$ (or equivalent)

21. $5e^{2t-t^2}$

22. 8

23. $\frac{x^2}{2} + \frac{1}{3} \ln \left| \frac{x-5}{x-2} \right| + C$ (or equivalent)

24. $8 \csc(x)$

25. -2