

INTRODUCTION TO CALCULUS

MATH 1A

UNIT 24: WORKSHEET

Integral Drill

Problem 1: Level 1

- a) $\int x^5 dx$
- b) $\int \sin(x) dx$
- c) $\int \frac{1}{x} dx$

Problem 2: Level 2

- a) $\int 4x^{-3} dx$
- b) $\int \cos(3x) dx$
- c) $\int \frac{1}{1+x^2} dx$

Problem 3: Level 3

- a) $\int x^5 + x^2 + x + 1 dx$
- b) $\int \sin(14x) + \cos(3x) + \frac{1}{x^2} dx$
- c) $\int 17 \frac{1}{\cos^2(x)} + x^9 dx$

Problem 4: Level 4

- a) $\int \frac{1}{7+x} dx$
- b) $\int \sin(3 + 2x) + \frac{8}{\sin^2(x)} dx$
- c) $\int \cos(x^2)2x dx$

Problem 5: Level 5

- a) $\int \frac{1}{x \ln(x)} dx$
- b) $\int \sin(9 + 2x^2)x dx$
- c) $\int \ln(x)/x dx$

In case you need some motivation for this drill, we asked midjourney to have some drill sergeant yell at us. We all sometimes need a bit of a push!



Single Variable Calculus

OLIVER KNILL, KNILL@MATH.HARVARD.EDU, MATH 1A, SPRING, 2024