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NOTE[1]

The due date is published on the course pages. Homework can be submitted only digitally. Instructions on labelling the "papers" can be found on the course pages.

1 Introductory Problems

INTRO 15 Evaluate the integral

$$\int (x+3)e^{2x}\,dx.$$

INTRO 16 Evaluate the integral

$$\int \frac{1}{x^2-9}\,dx.$$

2 Homework Problems

EXERCISE 15 Evaluate

$$\lim_{n\to\infty}\frac{1}{n^2}\sum_{k=1}^{n} k \arctan\frac{k}{n}.$$

(Main branch of arctan.)

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EXERCISE 16   Find the recursive formulation for
$$I_n = \int_1^e (\ln x)^n \, dx \quad (n \in \mathbb{N}).$$