

## Midterm sample

The Midterm comprises 2 questions:

1. limit of a sequence with roots (8 points)
2. limit of a sequence with scale (7 points)

Students have 60 minutes and can use any literature (notes, tables, textbooks...), but no technical devices (phone, calculator, watches...).

### Example of midterm questions

1. (8 points) Find the limit of a sequence:

$$\lim_{n \rightarrow \infty} \frac{\sqrt{2n-3} - \sqrt{2n+3}}{\sqrt[3]{n+4} - \sqrt[3]{n-2}}.$$

2. (7 points) Find the limit of a sequence:

$$\lim_{n \rightarrow \infty} \frac{n! + 2^n - 3 \cos(n^2) + 3n^4}{2n^4 + \ln n - 2(n!) - e^n}$$