

Exercises 5

1.

(a) Calculate the following sum:

$$\sum_{n=-2}^2 n^{n+2}$$

(b) For the following sum, write a formula with summation symbol:

$$\frac{1}{3} + \frac{2}{5}x + \frac{3}{7}x^2 + \frac{4}{9}x^3 + \frac{5}{11}x^4$$

2. Calculate the sum of all integers from 1 to 1000.

3. Calculate the following limits:

(a) $\lim_{x \rightarrow \infty} \frac{1}{8 - 3x}$

(b) $\lim_{x \rightarrow 2} ax^2 - bx + c \quad (a, b, c \in \mathbf{R})$

(c) $\lim_{x \rightarrow \infty} \frac{-2x^4 + x^3 - 3x - 1}{7x^3 + x^2 - 2x + 9}$

(d) $\lim_{x \rightarrow 5} \frac{x^2 - 25}{x - 5}$