Exercises 6

1.

(a) Calculate the following sum:

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

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

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

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

3. Calculate the following limits:

(a) $\lim_{x\to\infty} \dfrac{1}{8-3x}$

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

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

(d) $\lim_{x\to 5} \dfrac{x^2 - 25}{x - 5}$