The use of auxiliary material besides calculator is forbidden. Write your answers in the course context.

Answer ONLY TWO of the enumerated questions below (in other words, select 1 and 2, 2 and 3, or 1 and 3).

1. Briefly explain and sketch (conceptual, freehand) image examples of six different kinds of visualization approaches for visualizing functions $f: \mathbb{R}^2 \to \mathbb{R}^2$. (6 points)

2. Given the function $f: \mathbb{R} \to \mathbb{R}, f(x) = \left(\frac{x}{10} - 1\right)^3 + 1$, provide answers to all of the following items:

   a) Select and calculate few suitable sample points for f. Explain why you selected exactly these points. (1 point)
   b) Provide piecewise linear reconstruction and visualization for f, using explicitly defined basis functions. (3 points)
   c) Explain the related data modelling and visualization concepts: grid, sample density, basis, interpolation, and artifact. (2 points)

Table 1. *Four service provider profiles using three selected attributes: cost of service (×1000 Euros), perceived quality of service (value between 1 and 5 where small value means low quality), and service delay (in days)*

	A	B	C	D
Cost	1.5	2	3	1
Quality	3.5	5	3.8	4
Delay	3	3.5	3	5

3. Given the data Table 1 above, provide answers to all of the following items:

   a) Design a parallel coordinate plot visualization for the data. (3 points)
   b) Customer, who does not care about service delay, is looking for a cheap, good-quality service. Which are the two most promising providers? Explain. (1 point)
   c) Bob claims that the service provider A is about twice as good as the service provider C. Suggest one clear argument for and another clear argument against Bob's claim. (2 points)