1. Read the following list of characteristics and think about their measurement level:

a) Socioeconomic status (index from 1 to 10 calculated according to education and parents' occupation)
b) Verbal fluency (number of words beginning with letter F pronounced in 1 minute)
c) Keyboard typing speed (mean number of keystrokes per 1 minute)
d) Favourite food (answer to the question "What do you order most often in a restaurant?"
e) Nationality
f) Assertiveness (result of a 10-item self-report scale)
g) Year of birth
h) Religious belief
i) Age
j) Hand dominance
k) Membership in a political party (answer to the question "Are you member of some political party?"
l) Occupation
m) School grades
n) Ranking of tennis players
o) Weight (as number shown on weighing-machine in kilograms)
p) Education (measured as number of years of school attendance)
q) Education (measured as the highest education level completed, e.g. primary, secondary, high school, college etc.)
r) Sex

2. Which of the listed variables are measured on nominal scale?
3. Which of the listed variables are measured on interval, but not ratio scale?
4. Which of the listed variables are measured on ratio scale?
5. Which of the listed variables are measured on ordinal scale, but probably not on interval scale?
6. If all the subjects in your sample are of Czech nationality, what would happen with the variable nationality? Would it still be a variable?
7. Are there any dichotomous variables in the list? Which variables are polytomous?
8. Is it possible to transform the interval or ratio measurement level to ordinal level?
9. On which scale is "weight" measured? How would you transform it to ordinal level?
10. Which measurement level is necessary to say: "This value is 25% higher than the other value?"
11. Subjects in our study are measured on interval scale. On which scale are measured the differences between the individuals?

12. Is the variable "the number of books in library catalogue" discrete? On which level is this variable measured?
13. Below, you can see the results of an experiment which examined whether different teacher attitude in experimental and control group influences tests scores. However, the following table is not a data matrix. Rearrange data in a data matrix.

Table 2-1 ♦ Hypothetical IQ data for the teacher-expectancy study

	Experimental group ("bloomers")			Control group		
Grade level	Student	Pretest	Posttest	Student	Pretest	Posttest
1	1	60	107	31	60	90
	2	85	111	32	75	99
	3	90	117	33	90	102
	4	110	125	34	105	114
	5	115	122	35	120	121
2	6	65	118	36	80	99
	7	79	115	37	85	95
	8	80	115	38	95	104
	9	95	116	39	99	108
	10	110	122	40	120	123
3	11	90	98	41	80	102
	12	93	103	42	100	106
	13	104	107	43	105	107
	14	108	100	44	110	111
	15	125	125	45	119	119

Table 2-1 ♦ (Continued)

	Experimental group ("bloomers")			Control group		
Grade level	Student	Pretest	Posttest	Student	Pretest	Posttest
4	16	95	95	46	95	102
	17	100	108	47	99	102
	18	104	108	48	104	107
	19	106	104	49	110	116
	20	110	116	50	120	120
5	21	75	106	51	85	112
	22	88	106	52	90	110
	23	90	95	53	100	115
	24	105	115	54	110	119
	25	120	124	55	115	125
6	26	80	97	56	79	96
	27	95	102	57	100	120
	28	100	110	58	105	117
	29	110	98	59	106	110
	30	120	122	60	110	116

14. Below, you can see the data from a survey about what beverages people drink most often.

A. Create a data matrix from following data:

Question: Which of these beverages have you drunk in the last week?		
Woman 1 ☑ Sweet lemonades ☐ Water ☑ Tea	Woman 2 ☑ Sweet lemonades ☐ Water ☐ Tea	Woman 3 ☐ Sweet lemonades ☑ Water ☐ Tea
Man 1 ☑ Sweet lemonades ☑ Water ☐ Tea	Man 2 ☐ Sweet lemonades ☑ Water ☑ Tea	Man 3 ☑ Sweet lemonades ☑ Water ☑ Tea

B. Question in the following data was stated a bit differently. Create a data matrix for these data.

Question: Which of these beverages have you drunk most often in the last week?		
Woman 1 ⦿ Sweet lemonades ○ Water ○ Tea	Man 2 ○ Sweet lemonades ⦿ Water ○ Tea	Woman 3 ○ Sweet lemonades ⦿ Water ○ Tea
Man 1 ○ Sweet lemonades ○ Water ⦿ Tea	Woman 2 ⦿ Sweet lemonades ⦿ Water ○ Tea	Man 3 ○ Sweet lemonades ○ Water ⦿ Tea

C. The variables "drinking of sweet lemonades", "drinking of water" and "drinking of tea" from the question 12.A are (check all that apply):

a) nominal b) ordinal c) interval d) ratio
e) continuous f) discrete g) cardinal h) categorical
j) dichotomous

D. The variable "the most often drunk beverage" from the question 12.B is (check all that apply):

a) nominal b) ordinal c) interval d) ratio
e) continuous f) discrete g) cardinal h) categorical
j) dichotomous

E. The variable "gender" from the questions 12.A and B is (check all that apply):

a) nominal b) ordinal c) interval d) ratio
e) continuous f) discrete g) cardinal h) categorical
j) dichotomous