

Practice 1.2 (September 27)¹

You have to fill this poll <https://goo.gl/forms/taeaUUBDWUVVTVIi1> before Monday 26, 10 pm.

1. Decide whether the following numbers are odd or even:

a) $30521654_{(8)}$ b) $30521654_{(9)}$

2. © Write 3219 in base 4.

3. Compute the following additions using the algorithms of slide 22. Analyze their advantages and drawbacks.

a) $89 + 75$ b) $528 + 849$

4. Compute the following base 6 substraction, using both algorithms. Be sure that you understand the carrying that is involved :

$$\begin{array}{r} 5 \ 0 \ 2 \ 5 \ 3 \ (6) \\ - 2 \ 3 \ 5 \ 1 \ 4 \ (6) \\ \hline \end{array}$$

5. Fill in the following base 9 substraction:

$$\begin{array}{r} 7 \ \square \ 8 \ 0 \ 2 \ (9) \\ - 5 \ 5 \ \square \ \square \ 4 \ (9) \\ \hline 1 \ 8 \ 0 \ 2 \ \square \ (9) \end{array}$$

6. Compute these substractions using ABN algorithms.

a) $104 - 49$ b) $824 - 347$

Do you think it is useful (if you are interested in improving understanding) to compute base b substractions using ABN algorithms? Why?

7. © Imagine that you are working in the staff of an organization that has collected 1 million signatures (in paper). You have to organize the transport to the Parliament. Make an estimate of the class of vehicle that you will need for that.
8. Based on the consumption of last year, the administrator of a block of flats estimated that the gasoil that he had bought should be enough for 80 days. Nevertheless, the winter was mild, and daily consumption was 3 liters less than the forecast. If gasoil was over after 100 days, how many liters of gasoil did he bought at the beginning of the winter? (june 2014)
9. Alice starts walking from A towards B at a constant speed of 4 km/h. Bob starts walking at the same time from B towards A and his speed is 6 km/h. The distance from A to B is 25 km. When Alice starst walking from A a dog starts running from A towards B at a speed of 12 km/h.

- a) How much time does it take for the dog to find Bob?

¹All problems should be made without using a calculator. In the future, problems meant to be solved with the help of a calculator will be marked with the symbol ©.

- b) When the dog finds Bob, he starts running back towards Alice, and when he finds Alice he runs back towards Bob. If the dog does that (always at the same speed) till Alice and Bob meet each other, how many kilometers does the dog run?