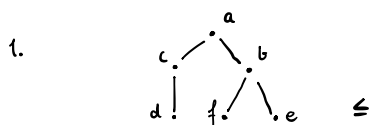
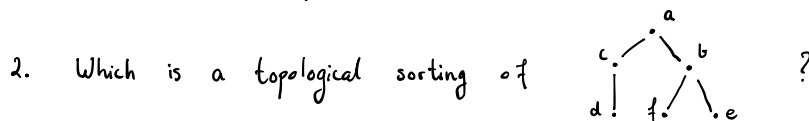


Vegleidandi multiple choice round 6

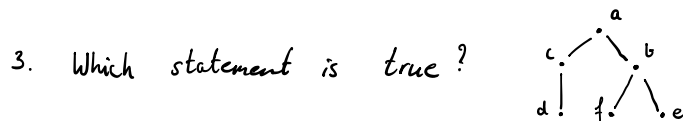


Which are lower bounds for  $\{b\}$  in  $A$ ?

Both  $b, e$  and  $f$ .



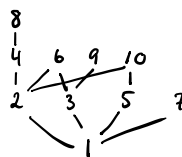
$d, f, e, c, b, a$



$\text{LUB}(\{b, c\}) = a$ .

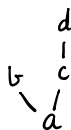
4.  $A = \{1, 2, 3, \dots, 10\}$  equipped with  $a \leq b \iff a|b$ . Which are the maximal elements?

$6, 7, 8, 9, 10$



5. Which matrix defines an order relation?

$$\begin{bmatrix} 1 & 1 & 1 & 1 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$



6.  $A = \mathbb{Z}$  with  $\leq$ , and  $B = \mathcal{P}(\{x, y, z\})$  with  $\subseteq$ . On  $A \times B$  we use the lexicographic order. Which is the greatest element of the following?  
 $(4, \{x, y\})$

7. Which Hasse diagram is not a lattice?

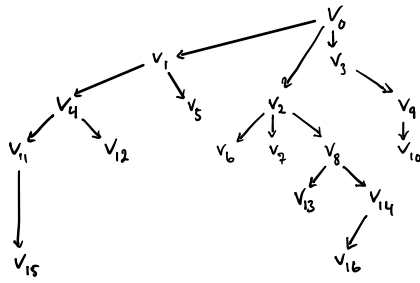


8.  $\mathbb{Z}_+ \times \mathbb{Z}_+$  with  $(x, y) \leq (x', y') \iff x \leq x' \wedge y \leq y'$ .

Consider  $A = \{(1, 1), (1, 2), (1, 4), (2, 1), (3, 2), (3, 3)\}$ . Which statement is true?

$\text{GLB}(A) = (1, 1)$ .

7.1.14-18



14. (a) List level-4 vertices.

$v_{15}, v_{16}$

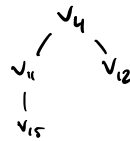
(b) List all leaves.

$v_{15}, v_{12}, v_5, v_6, v_7, v_{13}, v_{16}, v_{10}$

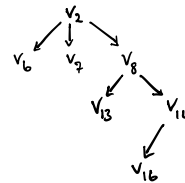
15. (a) Siblings of  $v_2$ :  $v_1, v_3$ .

(b) Descendants of  $v_2$ :  $v_2, v_6, v_7, v_8, v_{13}, v_{14}, v_{16}$ .

16. (a) Compute the tree  $T(v_4)$ .



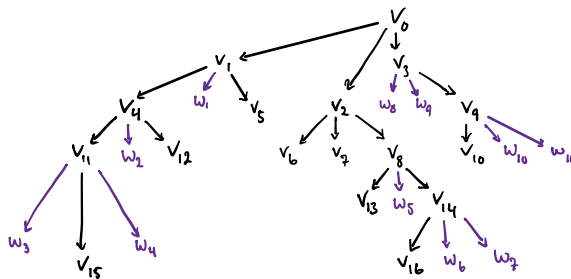
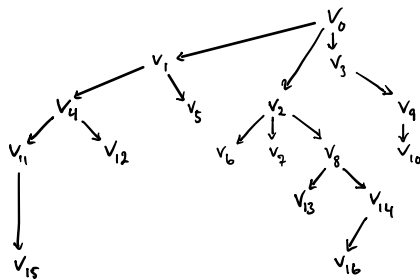
(b) Compute the tree  $T(v_2)$ .



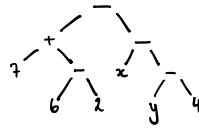
17. (a) Height of  $(T, v_0)$ : 4.

(b) Height of  $(T, v_4)$ : 2.

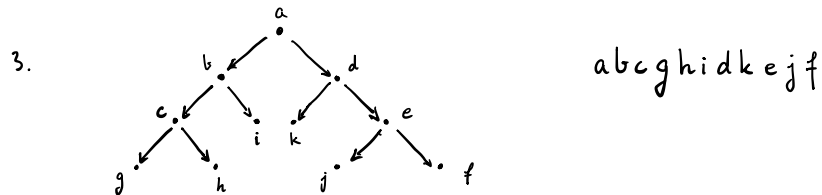
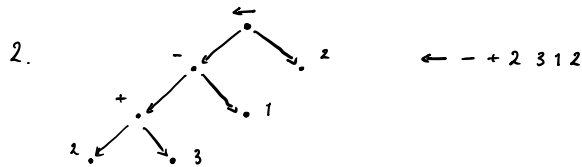
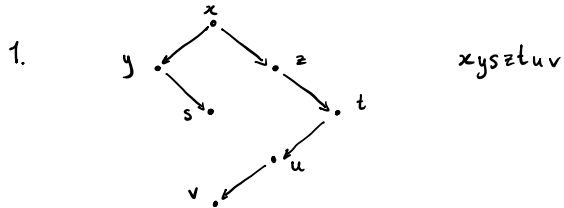
18. What is the minimal number of vertices to be added to make  $(T, v_0)$  a complete 3-tree? Draw the new tree.  
11 in total.



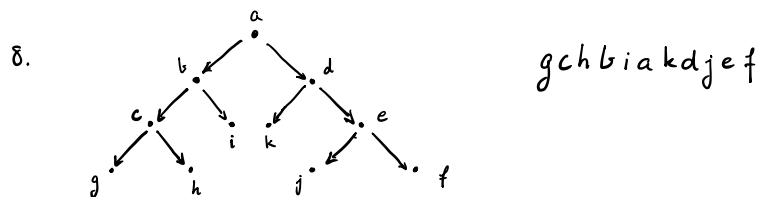
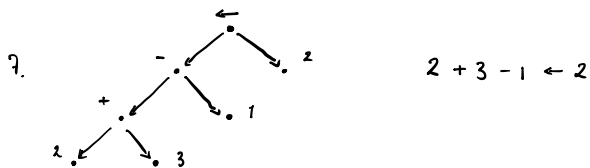
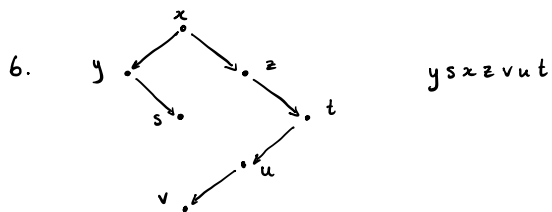
7.2.1 Construct the tree from  $(7+(6-2))-(x-(y-4))$



7.3.1-3 Show the result of a preorder search of the shown digraph.



7.3.6-8 Show the result of an inorder search.



7.3.11-13 Show the result of a postorder search.

