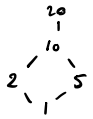
Vegleiðandi multiple choice 75 min.

1. An everywhere defined function on $\{1,2,\ldots,5\}$.

   $\{(1,1),(2,3),(3,2),(4,4),(5,1)\}$.

2. D_{20} with $|$ on $\{1,2,5,10,20\}$. What is $2 \vee 5$

   10.



3. Order of growth: n, 2^n, n^3, $4 \log n$

   $4 \log n$, n, n^3, 2^n.

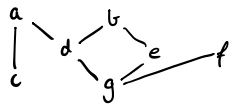
4. Same growth as 3^n.

   $2^n + 3^n + n^4$.

5. Partial order of $\mathbb{Z}_+$. Reflexive, antisymmetric and transitive.

   $x R_2 y \iff x - y \leq 0$.

6. Consider $\leq$ on $A = \{a,b,c,d,e,f,g\}$ given by



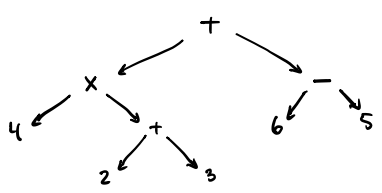
   Which is not a topological sorting?

   gcadefb

7. For $n \in \mathbb{Z}_+$ let D_n denote positive divisors of n. Which is not a Boolean algebra?

   D_4  $3 \neq 2^k$.

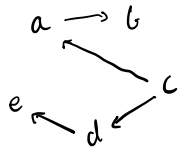
8. Consider

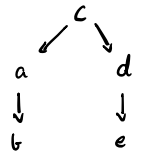


   Which is the correct in Polish form? (preorder)

   + x 4 + 2 3 − 6 5

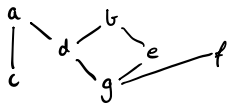
9. Which matrix defines a tree which is also a tree?





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

10. Consider $\leq$ on $A = \{a, b, c, d, e, f, g\}$ given by



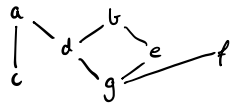
Which statement is false?

$c \leq d$.

11. Which function $f : \mathbb{Z} \to \mathbb{Z}$ is a bijection?

$f(x) = -x$.

12. Consider $\leq$ on $A = \{a, b, c, d, e, f, g\}$ given by



Which statement is true?

A has 3 maximal elements.