

1.

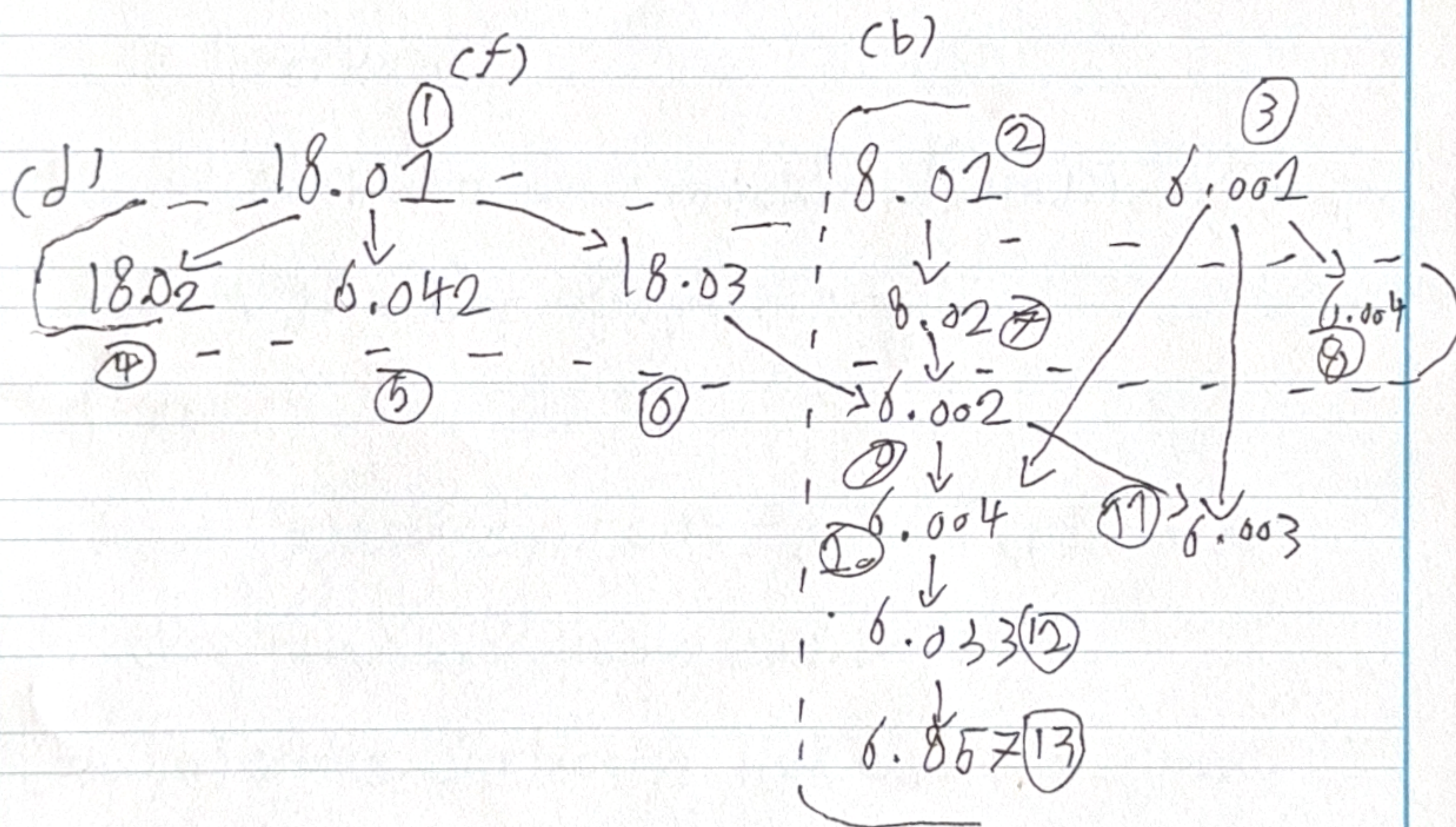
(a) each class has remainder  $i \bmod 3$   $0 \leq i \leq 2$

(b)  $k \leq a \leq k+1$   $k \in \mathbb{Z}^+ \cup \{0\}$

2. (a) Symmetry

(b) Symmetry

3. (a)



(c) 6

(d) 18 (e) 5

(f) (g) 8

(h) 6

(i) length of longest chain  $\sqrt{\text{length of } \text{topsort}}$   
 $\frac{\text{length of } \text{topsort}}{k}$