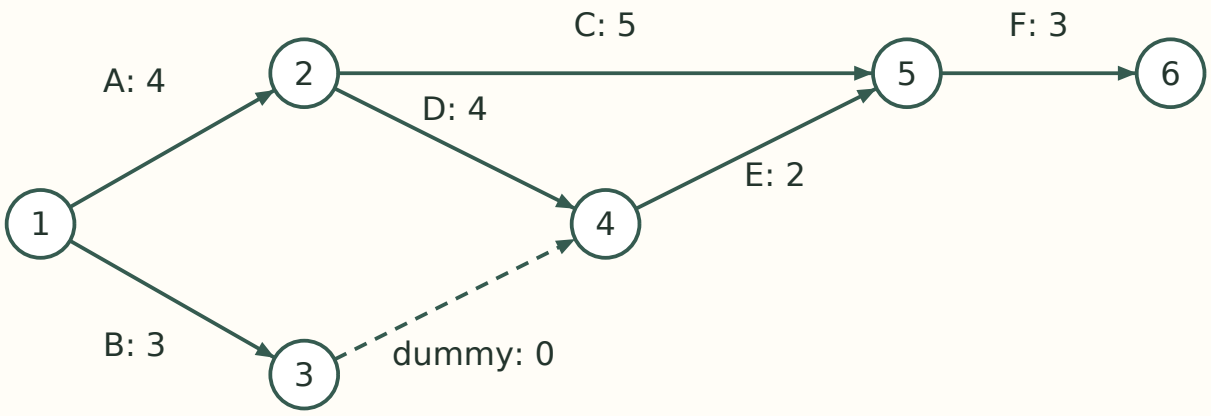
Earliest/latest times

6 questions | 15 marks

Equivalent correct methods earn the corresponding marks.

1. Use the display project to find ES, EF, LS and LF for B. [3 marks]



Activity-on-arrow network; durations are in days.

Forward and backward scans for the display network, with completion at day 13.

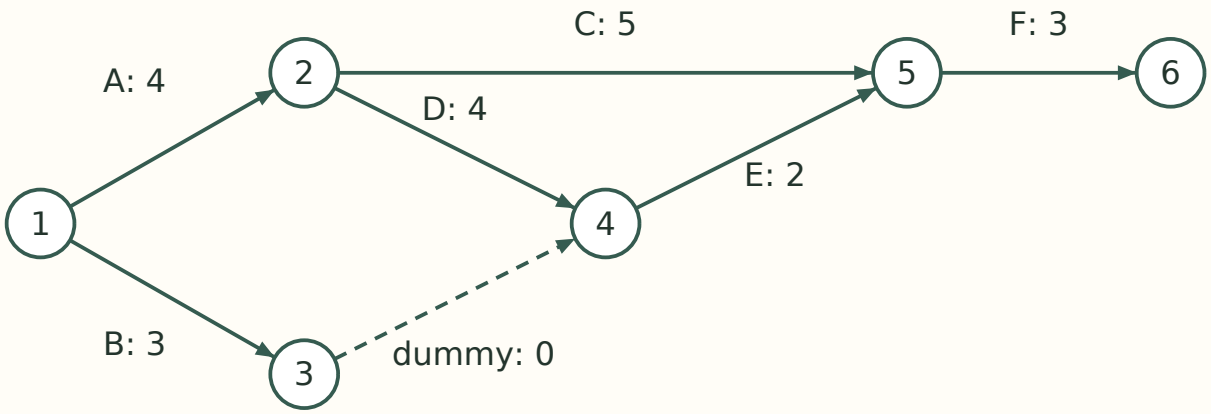
Event	Earliest time	Latest time
1	0	0
2	4	4
3	3	8
4	8	8
5	10	10
6	13	13

B is 1→3 of duration 3.

ES=E1=0; EF=3; LF=L3=8; LS=8−3=5.

Answer: 0, 3, 5 and 8 days respectively.

2. Find all four activity times for C in the display project. [3 marks]



Activity-on-arrow network; durations are in days.

Forward and backward scans for the display network, with completion at day 13.

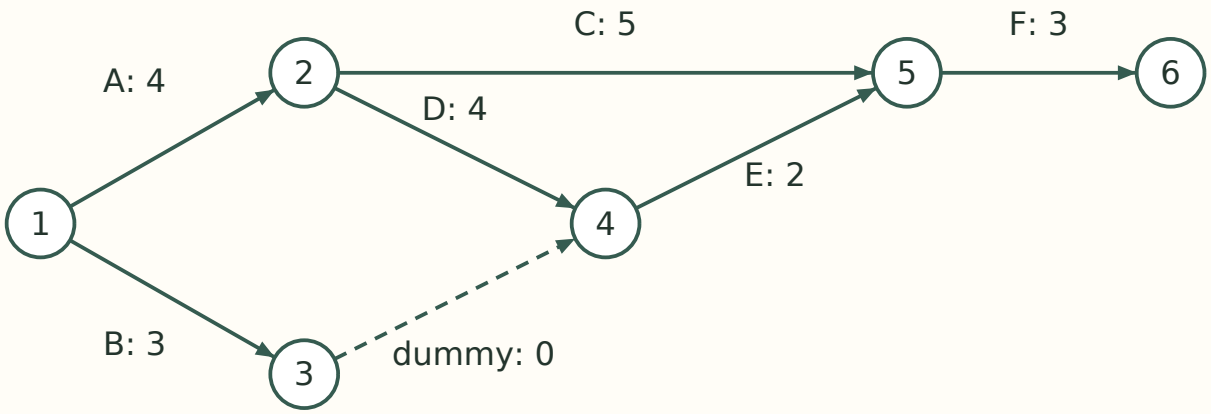
Event	Earliest time	Latest time
1	0	0
2	4	4
3	3	8
4	8	8
5	10	10
6	13	13

C is 2→5 of duration 5.

ES=4; EF=4+5=9; LF=10; LS=10−5=5.

Answer: ES=4, EF=9, LS=5, LF=10 days.

3. Find all four times for E in the display project. [2 marks]



Activity-on-arrow network; durations are in days.

Forward and backward scans for the display network, with completion at day 13.

Event	Earliest time	Latest time
1	0	0
2	4	4
3	3	8
4	8	8
5	10	10
6	13	13

E is 4→5 of duration 2.

Use E4=8 and L5=10.

Answer: ES=8, EF=10, LS=8, LF=10 days.

4. A task lasts 8 minutes. Its ES is 12 and LS is 15. Find EF and LF. [2 marks]

Add the same fixed duration to each start.

12+8=20; 15+8=23.

Answer: EF=20 and LF=23 minutes.

5. An activity runs 2→5 for 3 days. E2=6, E5=12 and L5=14. Find its earliest finish and explain why it differs from E5. [3 marks]

The task itself finishes at 6+3=9.

An event combines all incoming requirements.

Answer: EF=9 days; event 5 waits for another incoming activity until day 12.

6. A claimed schedule gives ES=5, EF=11, LS=9 and LF=14 for one fixed-duration activity. Identify the inconsistency. [2 marks]

11−5=6.

14−9=5; the same activity cannot have both durations in this model.

Answer: The duration would be 6 from ES/EF but 5 from LS/LF.