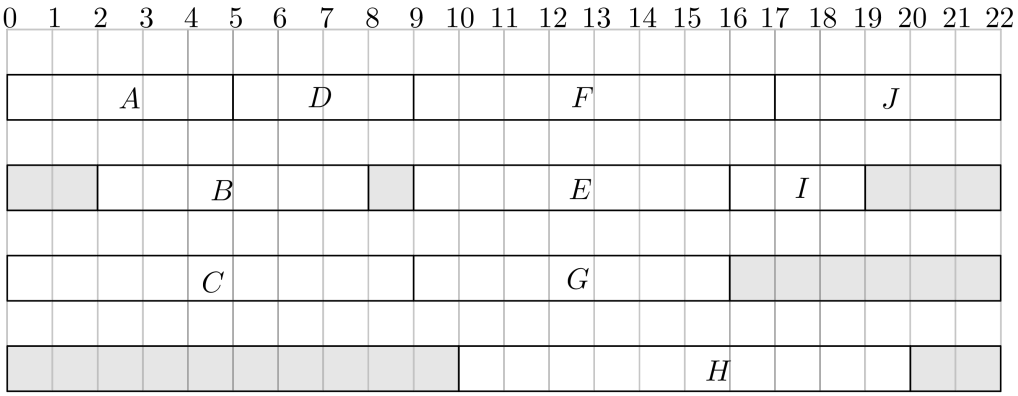
Critical path analysis 8I

1 a $\frac{64}{22} = 2.9...$ so, lower bound = 3

b The float time for activity B is 3 hours which is more than the 2 hour delay and will not result in a delay for the whole project.

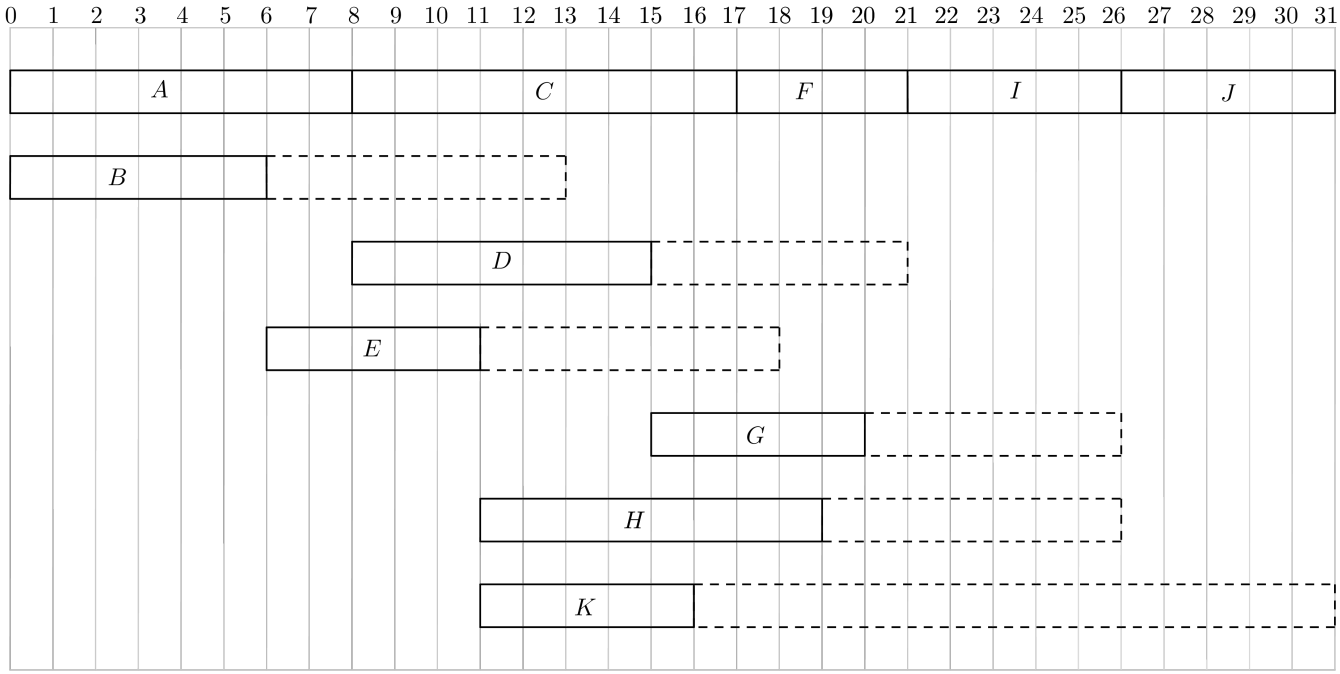
c Activities J and H

d

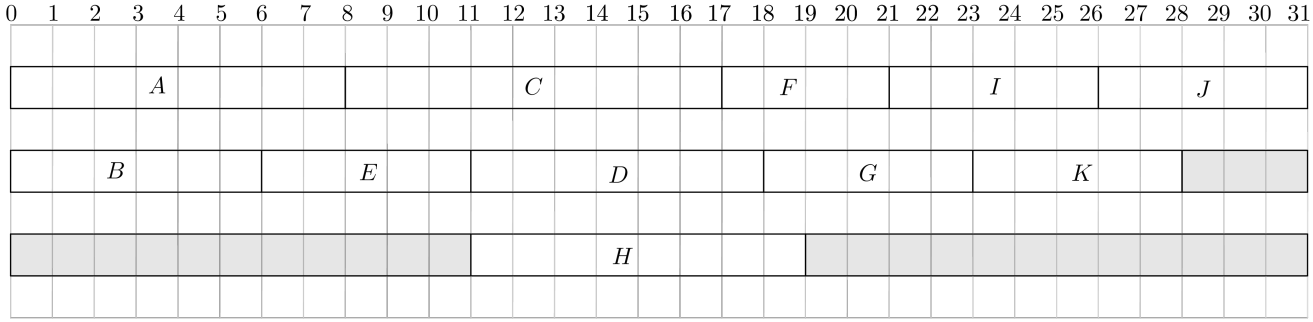


4 workers are needed to complete the project in 22 hours.

2 a

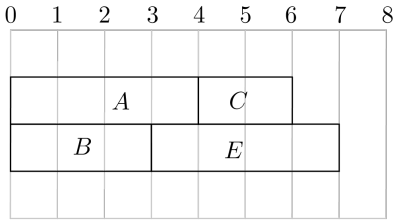


2 b

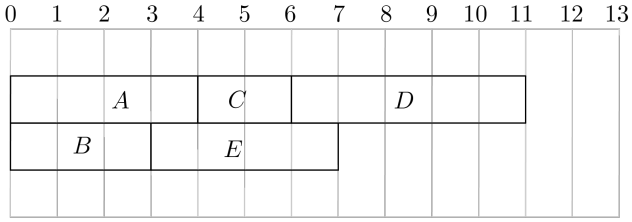


3 workers are needed to complete the project in the critical time.

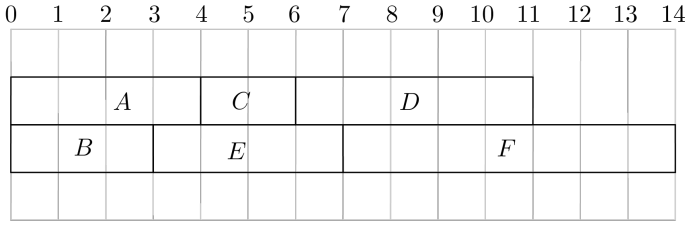
3



When worker 2 completes activity *B*, only activity *E* may be started.

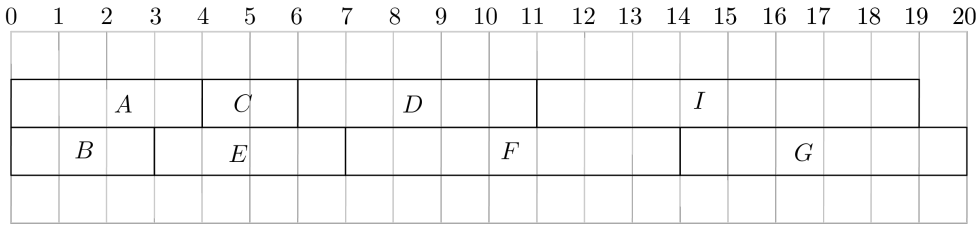


When worker 1 completes activity *C*, the next activity to start is either *D* or *F*. Activity *D* is chosen because it has the lowest value for its latest finish time.

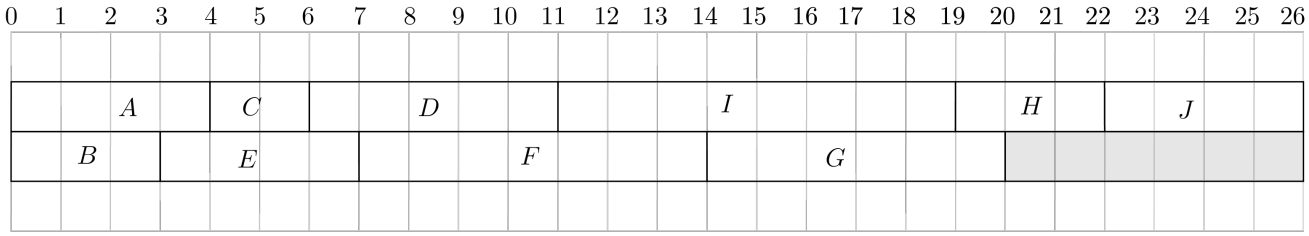


The lowest late time is now 14 so Activity *F* is allocated to Worker 2.

At this point, activities *G* and *I* are available to Worker 1. They all have the same late time, so care is needed to make the right choice and this may require some trial and improvement. Worker 1 has been used for 3 hours less than Worker 2 so, in this case, it may be worth allocating the activity with the greatest duration to Worker 1. Now allocate activity *G* to Worker 2.



Finally allocate activities H and J.



Looking at this diagram, it seems that this is an example where following the general advice does not lead to an optimal solution. By assigning Activities D and H to worker 2 and Activity F to worker 1, activity J can be started one hour earlier as below.