

This is similar to the solved exercise, although the graph is a bit larger. Node  $a$  must come first, and node  $f$  must come last. Among the remaining four nodes,  $b$  must precede  $c$ , and  $d$  must precede  $e$ , but otherwise we can place them however we want.

To figure out how many orderings of these four middle nodes are possible, we note that either  $b$  or  $d$  must come first among them.

- If  $b$  comes first, then either  $c$  or  $d$  comes next.
  - If  $c$  comes next, the ordering must be  $b, c, d, e$ .
  - If  $d$  comes next, then the ordering can be either  $b, d, c, e$  or  $b, d, e, c$ .
- If  $d$  comes first, we have three orderings obtained simply by reversing the roles of  $b, c$  and  $d, e$  in the above reasoning.

Thus the total number of orders for these four nodes is 6, and this is the total number of topological orderings.

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<sup>1</sup>ex580.660.846