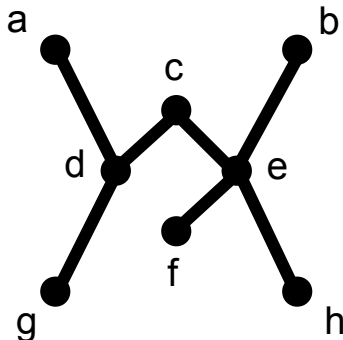


## Selected solutions Module 12

### Exercise 17.1.

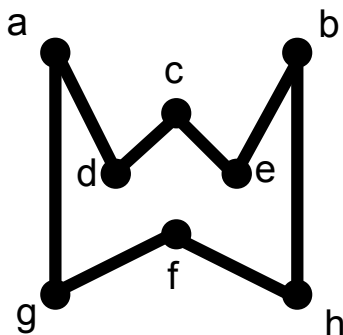
First find a minimum spanning tree, for example:



Double each edge in the tree and find an Euler tour, for example:

$(a, d, c, e, b, e, h, e, f, e, c, d, g, d, a).$

Skip already-visited vertices. This gives a TSP tour of length 24:



### Exercise 17.2

Assume (without loss of generality) that  $d(a, c) = 2$ . Then

$$\frac{ALG}{OPT} = \frac{10\sqrt{2} + 10}{18 + 2\sqrt{2}} < 1.16$$