2. (a) A binary search algorithm is shown below. This algorithm is incomplete.

```
1.  Set low = 0
2.  Set high = number of elements in the list − 1
3.  Set found = false
4.  While _____________________________
5.  Set mid = (low + high) / 2
6.      If target = list[mid] then
7.          Set position = mid
8.          Set found = true
9.      Else if _____________________
10.         Set low = mid + 1
11.     Else
12.         Set high = mid − 1
13.     End if
14. End while
```

Write the conditions needed to complete line 4 and line 9 of the algorithm. **2**

MARKS

2. (continued)

(b) The contents of an array are shown below.

49366323
35888744
35332982
51087533
35471544
63728272
35395841
35646683
35853694
35676309
35666839

Explain why the binary search algorithm would not return the expected result when applied to the array. **1**