2 Consider the following algorithm in Fig.2, expressed in pseudocode, as a function S:

```
function S(A[0..N-1], value, low, high)

     if (high < low)
           return error_message
           mid = (low + high) / 2

     if (A[mid] > value)
            return S(A, value, low, mid-1)

     elseif (A[mid] < value)
           return S(A, value, mid+1, high)

     else
           return mid

endfunction
```

Fig.2

(a) State the name of the algorithm implemented in Fig.2.

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[1]

(b) Describe the purpose of this algorithm.

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[2]

(c) Parameters are passed to this function. Complete the following table to identify these parameters and the purpose of each.

Parameter name	**Purpose**

[8]

(d) (i) Describe what is meant by recursion.

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[2]

(ii) Identify **one** example of where recursion occurs in this algorithm.

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[1]

(e) Rewrite the algorithm in Fig.2 without using recursion.

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[8]

(f) Explain how the algorithm in Fig.2 is an example of a divide and conquer approach.

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[3]