|  |  |  |  |
| --- | --- | --- | --- |
|  | 100 | load | One |
|  | 101 | Store | X |
| loop | 102 | load | X |
|  | 103 | Subt | Ten |
|  | 104 | Skipcond | 000 |
|  | 105 | Jump | endloop |
|  | 106 | Load | X |
|  | 107 | Add | One |
|  | 108 | Store | X |
|  | 109 | Jump | Loop |
| ENDLOOP | 10A | Halt |  |
|  | 10B | X | 0 |
|  | 10C | One | 1 |
|  | 10D | Ten | 10 |

17.

18.

|  |  |  |  |
| --- | --- | --- | --- |
|  | 100 | load | one |
|  | 101 | store | X |
| loop | 102 | load | x |
|  | 103 | subt | ten |
|  | 104 | skipcond | 000 |
|  | 105 | jump | endloop |
|  | 106 | load | sum |
|  | 107 | add | x |
|  | 108 | store | Sum |
|  | 109 | load | x |
|  | 10A | add | One |
|  | 10B | store | x |
|  | 10C | jump | loop |
| endloop | 10D | halt |  |
|  | 10E | x | 0 |
|  | 110 | sum | 0 |
|  | 111 | one | 1 |
|  | 112 | ten | 10 |

19.

|  |  |  |  |
| --- | --- | --- | --- |
|  | 100 | Load | Sum |
|  | 101 | store | sum |
| loop | 102 | load | Time |
|  | 103 | subt | One |
|  | 104 | store | time |
|  | 105 | skipcond | 400 |
|  | 106 | jump | endloop |
|  | 107 | load | Sum |
|  | 108 | add | x |
|  | 109 | store | Sum |
|  | 10A | jump | loop |
| endloop | 10B | load | Sum |
|  | 10C | add | X |
|  | 10D | store | Sum |
|  | 10E | x | ? |
|  | 110 | Time | ? |
|  | 111 | one | 1 |
|  | 112 | sum | 0 |

20.

|  |  |  |  |
| --- | --- | --- | --- |
|  | 100 | load | X |
|  | 101 | store | X |
|  | 102 | load | Y |
|  | 103 | store | Y |
|  | 104 | load | X |
|  | 105 | subt | Y |
|  | 106 | Store | X |
|  | 107 | x | ? |
|  | 108 | y | ? |