Factors

(a) 72 has exactly 12 factors: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72. What are the next two numbers with exactly 12 factors?

(b) A number has exactly eight factors, including itself and 1. Two of its factors are 22 and 55.

What is the number?