Assume you are performing a reaching definitions analysis on the following graph:

```
                    ┌─────────────────┐
                    │  1: x = 1;      │
                    │  2: x = x + x;  │
                    │  3: i = 0;      │
                    └─────────────────┘
                             │
                             ▼
                    ┌─────────────────┐
          ┌────────▶│     i < n       │
          │         └─────────────────┘
          │           │           │
          │           ▼           │
      ┌───────────────────┐       │
      │  4: x = x * 2;    │       │
      │  5: i = i + 1;    │       │
      └───────────────────┘       │
          │                       ▼
          │            ┌───────────────────┐
          └───────────▶│     return x;     │
                       └───────────────────┘
```
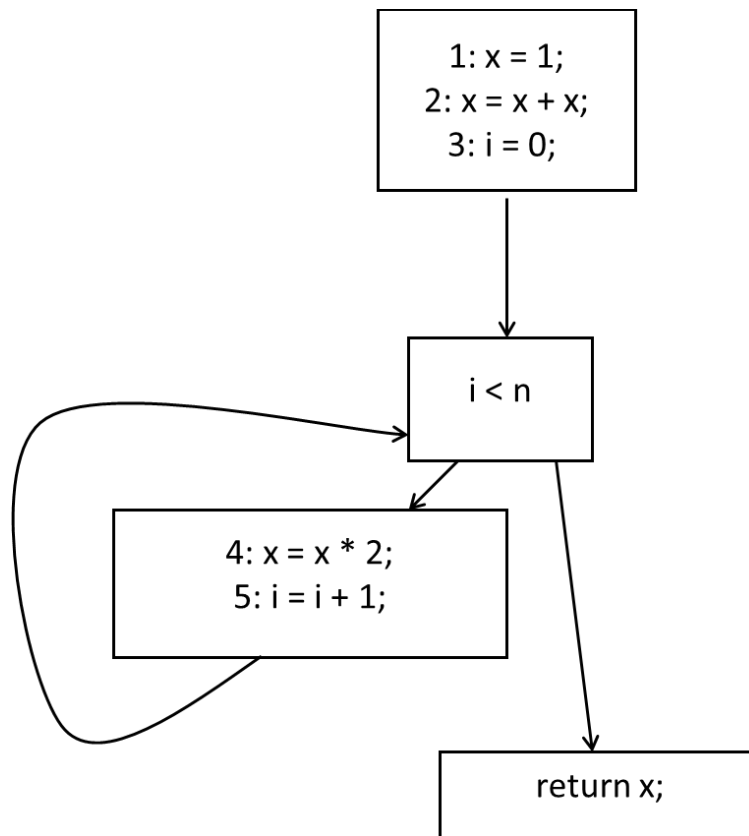
1. What is the length of the bitvector that the analysis uses?

2. What are the final bitvectors that the analysis computes at the end of each basic block?

3. What are the GEN and KILL sets for the first basic block?