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

```
1:  x  =  1;
2:  x  =  x  +  x;
3:  i  =  0;

i < n

4:  x  =  x  *  2;        return x;
5:  i  =  i  +  1;
```
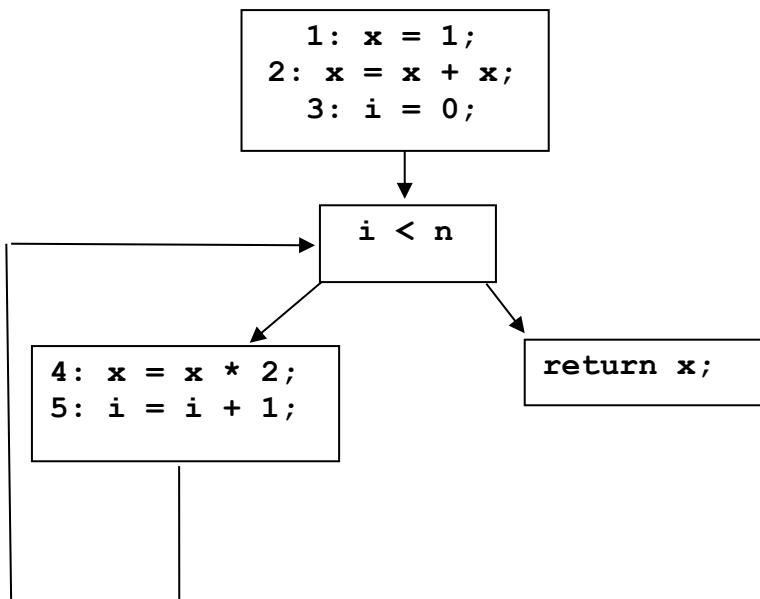
1. If bitvectors are used to store the results of the analysis, how many bits does each bitvector need?

    5 bits

2. What does each bit in such a bitvector represent?

    The *i*-th bit denotes whether definition *i* can potentially reach the point in the program that the bitvector corresponds to (1 if the definition can potentially reach, 0 otherwise).

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

    - For the basic block starting with x = 1: 01100
    - For the basic block containing i < n: 01111
    - For the basic block starting with x = x * 2: 00011
    - For the basic block containing return x: 01111