# 1 Exercises

**Exercise 1.** How is the following 10-dimensional sparse vector represented economically as a symbol table?

```
0   0   3.14159   0   2.71828   0   0   0   0   0
```

**Exercise 2.** How is the following 5-by-10 sparse matrix represented economically as an array of sparse vectors (symbol tables)?

```
0   0   0   0   0   0   0   0   0   0
0   0   6   0   0   0   0   0   9   0
7   0   0   0   0   2   0   0   2   0
9   0   0   1   0   0   0   0   0   0
0   0   0   0   0   0   0   0   0   4
```

# 2 Solutions to Exercises

**Solution 1.** `{2: 3.14159, 4: 2.71828}`

**Solution 2.**

```
0:    {}
1:    {2: 6, 8: 9}
2:    {0: 7, 5: 2, 8: 2}
3:    {0: 9, 3: 1}
4:    {9: 4}
```