

# アルゴリズムイントロダクション解答集

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## 2.

I. 1. 略.

2. Rewrite the INSERTION-SORT procedure to sort into nonincreasing instead of non-decreasing order.

ソースコード 1 DESC-INSERTION-SORT( $A$ )

---

```
1 for j = 2 to A.length
2   key = A[j]
3   i = j - 1
4   while i > 0 && A[i] < key
5     A[i+1] = A[i]
6     i = i - 1
7   A[i+1] = key
```

---

3. Write pseudocode for *linear search*.

ソースコード 2 LINEAR-SEARCH( $A$  and  $v$ )

---

```
1 for j = 2 to A.length
2   key = A[j]
3   i = j - 1
4   while i > 0 && A[i] < key
5     A[i+1] = A[i]
6     i = i - 1
7   A[i+1] = key
```

---

4. Consider the problem of adding two  $n$ -bit binary integers, stored in two  $n$ -element arrays  $A$  and  $B$ . The sum of the two integers should be stored in binary form in an  $(n + 1)$ -element array  $C$ . State the problem formally and write pseudocode for adding the two integers.

ソースコード 3 BINARY-PLUS-OPERATOR( $A$  and  $B$ )

---

```
1 for j = 2 to A.length
2   key = A[j]
3   i = j - 1
4   while i > 0 && A[i] < key
5     A[i+1] = A[i]
```

```
6         i = i - 1
7     A[i+1] = key
```

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**II.** 次に、宇宙が 10 次元の場合を考えよう。

1. それを計算せよ。
2. (1) の解を用いてあれを証明せよ。