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#include <iostream>
#include <iomanip>

using namespace std;

double prec[101][10001];

int main()
{
    int T;
    cin >> T;
    cout << fixed << setprecision(15);

    prec[0][0] = 1;
    for (int i = 1; i <= 100; i++)
    {
        for (int j = 0; j <= (i - 1) * (i - 2) / 2; j++)
        {
            for (int k = 0; k < i; k++)
                prec[i][j + k] += prec[i - 1][j] / (i + 0.0);
        }
    }

    while (T)
    {
        T--;
        int n;
        long long k;
        cin >> n >> k;

        int a[200];

        for (int i = 0; i < n; i++) cin >> a[i];

        int cnt = 0;

        for (int i = 0; i < n; i++)
        {
            for (int j = i + 1; j < n; j++)
            {
                if (a[i] > a[j]) cnt++;
            }
        }
        if (k > n * (n - 1) / 2) cout << 0.0 << endl;
        else
        {
            double expected = 0;
            for (int j = 0; j <= (n - 1) * n / 2; j++)
            {
                expected += j * prec[n][j];
            }

            int it = 0;
            double sum = 0;
            double prob2 = 0;
            double prob = 1 - prec[n][0];

            int p = 1;

            //cout << expected << endl;

            for (int i = 1; i <= k; i++)
            {
                while (it < n * (n - 1) / 2)
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{
    if (it + 1 - i > expected) break;
    it++;
    sum += it * prec[n][it];
    prob -= prec[n][it];
    prob2 += prec[n][it];
}

while (it - i > expected)
{
    sum -= it * prec[n][it];
    prob += prec[n][it];
    prob2 -= prec[n][it];
    it--;
}

while ((p <= it) && (p <= i))
{
    sum -= p * prec[n][p];
    prob2 -= prec[n][p];
    p++;
}

if (i == k) break;

expected = sum - i * prob2 + expected * prob;

//cout << i << " " << it << " " << expected << endl;
}

if ((cnt <= it) || (!k)) cout << max(0 + 0.0, cnt - k + 0.0) << endl;
else cout << expected << endl;
}
}

// system("pause");
return 0;
}
```