



Challenge Problem

Math Detective

The Parking Meter Caper

In May, 1978, Brink's, Inc. was awarded a contract to collect coins from approximately 70,000 parking meters in New York City for delivery to the NY City Department of Finance. NY City officials became suspicious that not all of the money collected was being turned in. In April of 1983 five Brink's collectors were arrested and charged with grand larceny. They were convicted.

The City of New York sued Brink's for negligent supervision of its employees, seeking to recover the stolen money. The court ruled that Brink's had to pay back all the stolen money. However, the actual amount of the shortage was in question. So the judge ruled that Brink's had to pay back a figure that was a reasonable estimate of the amount stolen.

The only available information is presented in the table on the right. Decide how much is a reasonable amount for Brink's to pay the City of New York.



Notes:

- "Month" refers to the month of the collection. Month 1 is May, 1977. Month 47 is March, 1981.
- "Contractor" refers to the amount collected from meters by a contractor service hired by New York City. From Month 13 to Month 36 that contractor was Brink's.
- * Indicates the months that Brink's collected coins from the parking meters of New York City.
- "City" refers to the collections performed by trusted meter collectors.

Reference: M.O. Finkelstein and B. Levin, *Statistics for Lawyers*, Springer-Verlag, 1990, 37-41.

Month	Contractor	City
1	\$ 2,224,277	\$6,729
2	\$ 1,892,672	\$5,751
3	\$ 1,468,074	\$6,711
4	\$ 1,618,966	\$7,069
5	\$ 1,509,195	\$7,134
6	\$ 1,511,014	\$5,954
7	\$ 1,506,977	\$5,447
8	\$ 1,520,443	\$6,558
9	\$ 1,070,936	\$5,222
10	\$ 1,941,901	\$4,150
11	\$ 1,602,841	\$6,765
12	\$ 1,246,483	\$6,681
13	* \$ 1,330,143	\$7,016
14	* \$ 1,525,370	\$7,440
15	* \$ 1,312,257	\$6,264
16	* \$ 1,494,717	\$7,337
17	* \$ 1,385,822	\$7,271
18	* \$ 1,557,598	\$6,694
19	* \$ 1,469,066	\$5,795
20	* \$ 1,547,011	\$7,105
21	* \$ 1,565,671	\$6,613
22	* \$ 1,124,576	\$5,258
23	* \$ 1,773,806	\$7,664
24	* \$ 1,652,490	\$6,716
25	* \$ 1,744,558	\$7,614
26	* \$ 1,678,286	\$7,652
27	* \$ 1,636,597	\$7,513
28	* \$ 1,738,847	\$7,852
29	* \$ 1,576,383	\$6,543
30	* \$ 1,846,508	\$6,855
31	* \$ 1,746,899	\$7,182
32	* \$ 1,685,611	\$6,830
33	* \$ 1,794,467	\$6,552
34	* \$ 1,695,017	\$7,318
35	* \$ 1,671,626	\$6,679
36	* \$ 1,566,107	\$6,637
37	\$ 1,972,964	\$7,912
38	\$ 1,934,369	\$7,379
39	\$ 1,881,303	\$7,803
40	\$ 1,733,339	\$8,126
41	\$ 1,825,021	\$7,489
42	\$ 1,918,247	\$7,986
43	\$ 1,664,116	\$6,020
44	\$ 1,941,848	\$6,442
45	\$ 1,619,657	\$7,937
46	\$ 1,648,605	\$6,685
47	\$ 1,837,134	\$7,470