

The crystal structure of paulmooreite, $Pb_2[As_2O_5]$: dimeric arsenite groups

TAKAHARU ARAKI, PAUL B. MOORE

*Department of the Geophysical Sciences, The University of Chicago
Chicago, Illinois 60637*

AND GEORGE D. BRUNTON

*Division of Reactor Chemistry, Oak Ridge National Laboratory
Oak Ridge, Tennessee 37830*

Abstract

Paulmooreite, $Pb_2[As_2O_5]$, was studied in detail by three-dimensional X-ray diffractometry on a Picker four-circle goniostat using $MoK\alpha$ radiation. The new mineral is monoclinic, space group $P2_1$ or $P2_1/m$ including exceedingly weak reflections but refined in $P2_1/a$, $Z = 4$, $a = 13.584(4)$, $b = 5.650(2)$, $c = 8.551(3)A$, $\beta = 108.78(2)^\circ$. $R = 0.064$ ($R_w = 0.057$) for 2709 independent reflections. The structure was solved by Patterson, Fourier and least-squares refinement techniques.

The structure is based on $[As_2O_5]^{4-}$ corner-linked dimers which link to distorted Pb-O polyhedra, leading to the weakest links across $\{001\}$, the plane of perfect cleavage. For $^{141}Pb^{141}As_2O_5$, bond distance averages are As(1)-O = 1.774, As(2)-O = 1.782, Pb(1)-O = 2.380, and Pb(2)-O = 2.436A. The $[AsO_3]^{3-}$ groups are trigonal pyramids, and PbO_4 groups are distorted tetragonal pyramids. For bonds $< 3.8A$, distorted Pb(1)O₃ and Pb(2)O₃ polyhedra occur. Due to lone-pair electrons about the cations, the coordination polyhedra are "one-sided," the electron pairs presumably residing around the empty vertices.

Introduction

About a decade ago, an unknown mineral from Långban, Sweden was investigated in a cursory fashion and subsequently reported as likely being a new species, corresponding to Flink unknown 49 (Moore *et al.*, 1971). Later study revealed the mineral to be the same as Flink unknown 305. A more detailed examination led to an electron microprobe study which revealed only lead and arsenic in the atomic ratio 1:1. Owing to the extreme rarity of the mineral we despaired of obtaining a more detailed wet-chemical analysis, especially for water and elements with atomic number less than 9, so we undertook a formal three-dimensional crystal structure analysis. Shortly after the structure was solved, the species was announced as the new mineral paulmooreite, $Pb_2As_2O_5$, by Dunn *et al.*, 1979. These authors also noted its occurrence on Flink unknown 305, a specimen from which our crystal was taken for structure analysis (Riksmuseet Stockholm No. 252356) before it was submitted to their study and recatalogued (NMNH # 142974). Thus, by a remarkable coincidence, the new

species and the structure were determined independently almost simultaneously.

Experimental section

Single crystals of the type specimen were examined and a suitable fragment was ground into an ellipsoid which measured $0.059 \times 0.13 \times 0.10$ mm along its principal axes. Least-squares refinement employing 20 high-angle $MoK\alpha$, reflections from a Picker four-circle goniostat with a Kevex Si-Li solid-state detector led to determination of the cell parameters $a = 13.584(4)$, $b = 5.650(2)$ and $c = 8.551(3)A$, $\beta = 108.78(2)^\circ$.

Three-dimensional data were collected with unfiltered $MoK\alpha$ radiation, $MoK\beta$ being eliminated by a 400V wide pulse-height analyzer window. Reflections were step-scanned in increments of 0.02° in 2θ over a range of $2\theta = (3.3 \times 114.6 \Delta\lambda/\lambda)^\circ$. Each step was counted for one second, and background was counted on each side of a reflection for fifteen seconds. The variance whose reciprocal was used in least-squares adjustment of structure parameters was

H	K	L	FO	FC	H	K	L	FO	FC	H	K	L	FO	FC	H	K	L	FO	FC
2	0	0	154.8	179.2	-12	0	6	272.9	275.3	5	1	0	50.3	55.8	-6	1	3	252.7	237.6
4	0	0	278.0	308.0	-10	0	6	45.4	45.2	6	1	0	5.7	15.4	-5	1	3	166.0	98.3
6	0	0	18.7	22.1	-8	0	6	95.3	94.9	7	1	0	5.4	4.3	-4	1	3	80.4	74.7
8	0	0	24.4	23.2	-6	0	6	60.6	60.2	8	1	0	121.5	129.0	-3	1	3	21.9	20.0
10	0	0	150.9	156.1	-4	0	6	87.8	87.9	9	1	0	117.7	123.2	-2	1	3	81.7	82.7
12	0	0	310.2	312.0	-2	0	6	191.2	188.9	10	1	0	119.2	122.9	-1	1	3	68.4	70.8
14	0	0	39.4	42.9	2	0	6	15.8	20.2	11	1	0	39.5	42.7	0	1	3	33.5	32.6
16	0	0	183.7	182.2	2	0	6	137.9	143.3	12	1	0	161.3	164.5	1	1	3	21.7	23.9
18	0	0	21.1	23.9	4	0	6	27.4	23.0	13	1	0	110.4	113.0	2	1	3	40.1	41.9
20	0	0	6.5	7.2	6	0	6	27.4	23.0	14	1	0	128.6	131.0	3	1	3	119.3	118.7
-20	0	1	33.8	33.5	8	0	6	62.9	63.0	15	1	0	29.7	25.5	4	1	3	360.0	357.2
-18	0	1	134.2	128.0	10	0	6	151.1	160.3	16	1	0	25.7	25.3	5	1	3	294.6	292.9
-16	0	1	81.0	82.4	12	0	6	5.9	8.0	17	1	0	10.1	10.7	6	1	3	221.7	224.3
-14	0	1	48.9	48.1	14	0	6	64.4	69.5	18	1	0	6.1	9.2	7	1	3	25.8	22.4
-12	0	1	150.5	148.8	-20	0	7	141.5	144.5	19	1	0	15.6	12.0	8	1	3	119.8	122.2
-10	0	1	18.0	17.1	-18	0	7	90.2	94.5	20	1	0	13.8	8.8	9	1	3	107.7	107.6
-8	0	1	388.0	387.0	-16	0	7	40.1	35.2	21	1	0	77.8	71.5	10	1	3	71.4	75.0
-6	0	1	327.1	328.5	-14	0	7	50.3	51.6	22	1	1	131.6	122.1	11	1	3	22.3	7.3
-4	0	1	40.5	41.7	-12	0	7	26.1	25.5	19	1	1	55.6	53.6	12	1	3	13.0	6.7
-2	0	1	186.9	166.0	-10	0	7	13.1	12.8	18	1	1	6.1	5.3	13	1	3	24.9	18.6
0	0	1	14.5	15.7	-8	0	7	326.3	319.1	17	1	1	56.7	54.1	14	1	3	43.9	43.2
2	0	1	5.2	12.7	-6	0	7	190.6	193.1	16	1	1	107.8	105.8	15	1	3	47.0	46.7
4	0	1	557.6	516.0	-4	0	7	245.2	250.0	15	1	1	62.3	60.0	16	1	3	102.2	99.3
6	0	1	268.4	273.7	-2	0	7	98.1	98.8	14	1	1	65.5	64.5	17	1	3	74.4	68.9
8	0	1	247.4	254.0	0	0	7	11.3	7.8	13	1	1	29.1	34.0	18	1	3	54.4	47.8
10	0	1	80.4	81.7	2	0	7	132.6	135.4	12	1	1	5.8	1.7	21	1	4	15.6	7.6
12	0	1	6.0	7.4	4	0	7	152.5	155.2	11	1	1	13.2	12.1	20	1	4	13.2	12.5
14	0	1	76.9	78.5	6	0	7	36.1	38.2	10	1	1	98.8	85.0	19	1	4	14.8	1.7
16	0	1	129.8	129.9	8	0	7	170.7	181.1	9	1	1	155.2	154.3	18	1	4	15.6	11.2
18	0	1	37.5	41.6	10	0	7	76.9	86.8	8	1	1	253.5	285.8	17	1	4	11.9	6.1
20	0	1	126.9	119.8	12	0	7	25.6	24.7	7	1	1	119.9	122.4	16	1	4	10.3	14.3
-20	0	2	14.1	4.9	14	0	7	54.2	57.1	6	1	1	77.7	83.5	15	1	4	14.6	4.9
-18	0	2	17.4	6.5	-20	0	8	10.3	6.3	5	1	1	286.1	297.6	-14	1	4	99.7	106.7
-16	0	2	6.6	11.9	-18	0	8	36.6	38.5	4	1	1	468.0	467.4	-13	1	4	129.0	132.4
-14	0	2	148.7	149.4	-16	0	8	160.8	166.5	3	1	1	223.4	231.9	-12	1	4	221.1	229.8
-12	0	2	298.0	289.6	-14	0	8	144.7	150.8	2	1	1	56.6	52.5	-11	1	4	136.4	139.7
-10	0	2	53.2	54.8	-12	0	8	63.4	64.1	1	1	1	44.9	44.7	-10	1	4	5.7	3.6
-8	0	2	181.5	191.0	-10	0	8	97.0	98.4	0	1	1	24.6	21.9	-8	1	4	101.1	100.3
-6	0	2	4.9	8.7	-8	0	8	34.6	35.0	1	1	1	51.8	48.8	-7	1	4	18.4	3.3
-4	0	2	318.3	310.4	-6	0	8	15.9	11.9	2	1	1	141.6	147.5	-6	1	4	39.7	39.0
-2	0	2	279.3	260.1	-4	0	8	224.2	223.4	3	1	1	58.3	64.9	-5	1	4	70.2	64.8
0	0	2	152.3	152.1	-2	0	8	206.1	208.2	4	1	1	56.6	64.9	-4	1	4	139.1	136.0
2	0	2	119.0	119.6	0	0	8	215.7	213.1	5	1	1	40.4	43.4	-3	1	4	187.6	179.8

4	0	2	297.4	289.3	2	0	8	186.3	192.6	6	1	161.6	170.3	-2	1	268.0	264.1
6	0	2	56.5	54.3	4	0	8	44.5	45.2	7	1	181.3	187.0	-1	1	136.3	128.0
8	0	2	165.4	178.3	6	0	8	19.0	25.8	8	1	307.4	313.4	0	1	150.3	147.8
10	0	2	164.5	171.0	8	0	8	102.8	102.7	9	1	164.6	169.5	1	1	83.0	84.5
12	0	2	123.5	129.0	10	0	8	34.9	37.7	10	1	33.0	32.9	2	1	46.6	47.9
14	0	2	142.3	138.6	12	0	8	106.5	105.3	11	1	63.0	66.2	3	1	100.4	98.6
16	0	2	33.9	34.6	-20	0	9	55.6	56.9	12	1	75.3	75.4	4	1	176.2	179.8
18	0	2	25.3	25.9	-18	0	9	19.6	20.3	13	1	10.0	10.8	5	1	83.8	81.8
-20	0	2	183.0	175.3	-16	0	9	84.2	87.8	14	1	37.6	39.1	6	1	24.4	20.2
-18	0	2	50.4	47.9	-14	0	9	5.3	6.2	15	1	22.3	18.2	7	1	30.2	26.1
-16	0	2	85.3	85.0	-12	0	9	86.4	89.8	16	1	32.8	33.5	8	1	87.1	92.0
-14	0	2	79.4	82.2	-10	0	9	156.2	162.7	17	1	70.7	68.1	-9	1	75.7	74.6
-12	0	2	6.0	9.1	-8	0	9	50.9	51.0	18	1	103.0	94.9	9	1	118.6	121.4
-10	0	2	90.0	90.0	-6	0	9	130.5	130.3	19	1	50.9	47.0	10	1	154.0	158.7
-8	0	2	441.5	421.1	-4	0	9	110.0	111.5	20	1	39.2	39.9	11	1	46.2	48.5
-6	0	2	59.5	56.9	-2	0	9	28.4	28.4	-21	1	22.6	19.0	12	1	40.9	40.8
-4	0	2	456.5	434.4	0	0	9	37.8	37.1	-20	1	16.9	1.6	13	1	62.7	62.3
-2	0	2	104.7	100.5	2	0	9	128.6	132.4	-19	1	23.5	24.9	14	1	88.6	86.5
0	0	2	30.0	26.2	4	0	5	92.2	92.8	-18	1	13.1	10.5	15	1	34.8	32.3
2	0	2	270.2	270.3	6	0	5	186.3	179.5	-17	1	75.9	75.8	16	1	36.9	37.7
4	0	2	148.1	146.2	8	0	5	16.9	19.1	-16	1	170.0	165.1	17	1	23.1	22.3
6	0	2	89.7	88.0	10	0	9	15.1	19.7	-15	1	116.1	111.7	17	1	65.7	62.7
8	0	2	325.4	328.4	-18	0	10	26.5	25.4	-14	1	28.4	27.7	-20	1	139.5	137.7
10	0	2	77.8	81.1	-16	0	10	67.5	71.8	-13	1	103.6	104.5	-19	1	87.4	86.6
12	0	2	68.3	71.1	-14	0	10	34.8	31.5	-12	1	197.9	196.0	-18	1	60.4	63.4
14	0	2	85.1	82.7	-12	0	10	164.3	165.4	-11	1	145.3	146.0	-17	1	9.8	6.1
16	0	2	12.2	3.2	-10	0	10	94.5	95.5	-10	1	145.6	155.2	-16	1	50.7	57.6
18	0	2	98.5	92.9	-8	0	10	18.5	12.4	-9	1	28.3	27.7	-15	1	46.2	46.1
-20	0	2	12.5	5.9	-6	0	10	74.1	74.6	-8	1	11.3	11.5	-14	1	45.6	48.7
-18	0	2	10.8	3.1	-4	0	10	31.5	28.6	-7	1	33.3	36.1	-13	1	29.9	30.2
-16	0	2	211.7	222.9	-2	0	10	87.8	85.7	-6	1	19.4	16.6	-12	1	17.2	16.3
-14	0	2	89.8	95.2	0	0	10	134.6	136.9	-5	1	67.4	68.4	-11	1	13.5	16.3
-12	0	2	206.6	219.4	2	0	10	79.4	80.1	-4	1	266.5	256.4	-10	1	40.5	40.3
-10	0	2	151.8	150.0	4	0	10	40.4	40.8	-3	1	248.2	239.4	-9	1	133.3	128.5
-8	0	2	29.7	28.6	6	0	10	11.8	8.5	-2	1	31.5	27.6	-8	1	330.3	327.3
-6	0	2	10.8	7.1	8	0	10	8.2	2.9	-1	1	305.2	277.6	-7	1	223.2	211.3
-4	0	2	358.1	356.4	-18	0	11	80.5	84.4	0	1	719.2	574.6	-6	1	107.3	107.4
-2	0	2	114.8	113.6	-16	0	11	11.9	9.7	1	1	394.5	353.7	-5	1	122.2	118.6
0	0	2	664.4	585.3	-14	0	11	9.2	4.3	2	2	209.5	205.8	-4	1	290.5	287.9
2	0	2	241.1	239.8	-12	0	11	40.8	41.0	3	1	85.9	87.6	-3	1	191.3	189.2
4	0	2	156.6	157.8	-10	0	11	55.6	57.4	4	1	168.5	173.5	-2	1	102.2	101.6
6	0	2	6.4	11.5	-8	0	11	150.7	152.9	5	1	60.5	62.4	-1	1	24.5	24.4
8	0	2	110.3	110.6	-6	0	11	168.8	171.2	6	1	20.8	21.5	0	1	20.5	14.1
10	0	2	38.5	38.6	-4	0	11	68.9	67.9	7	1	43.9	50.9	1	1	60.3	60.3
12	0	2	210.5	221.7	-2	0	11	37.3	35.4	8	1	41.8	45.5	2	1	130.5	133.1
14	0	2	110.3	110.8	0	0	11	32.0	30.7	9	1	25.7	13.6	3	1	98.5	96.6
16	0	2	98.4	97.8	2	0	11	31.5	31.3	10	1	80.8	86.2	4	1	142.8	147.1
-20	0	2	27.0	28.2	4	0	11	102.7	99.7	11	1	118.3	120.8	5	1	68.5	67.4
-18	0	2	85.1	84.8	6	0	11	66.5	68.5	12	1	210.1	212.0	6	1	18.5	22.2
-16	0	2	103.9	107.2	-16	0	12	68.5	67.7	13	1	132.5	134.9	7	1	77.9	82.8
-14	0	2	5.3	9.9	-14	0	12	114.1	116.7	14	1	65.8	64.5	8	1	184.3	197.4

-12	0	5	151.1	151.5	-12	0	12	19.5	19.0	15	1	2	39.4	39.4	9	1	5	134.3	138.6
-10	0	5	146.5	148.1	-10	0	12	28.6	26.4	16	1	2	110.6	108.9	10	1	5	73.5	79.0
-8	0	5	227.4	218.8	-8	0	12	5.4	2.8	17	1	2	70.0	68.0	11	1	5	17.0	15.6
-6	0	5	290.5	276.4	-6	0	12	26.2	29.5	18	1	2	21.3	17.5	12	1	5	31.6	31.5
-4	0	5	119.1	117.1	-4	0	12	26.7	26.2	19	1	2	14.7	18.9	13	1	5	6.6	3.5
-2	0	5	16.9	20.1	-2	0	12	150.7	159.7	-21	1	3	7.6	4.4	14	1	5	52.4	51.6
0	0	5	31.2	36.1	0	0	12	36.0	31.8	-20	1	3	6.5	5.3	15	1	5	41.0	38.0
2	0	5	127.3	133.5	2	0	12	87.9	89.3	-19	1	3	34.9	32.8	16	1	5	22.8	18.9
4	0	5	296.3	257.9	4	0	12	18.7	13.7	-18	1	3	90.1	87.5	-21	1	6	24.7	21.7
6	0	5	282.4	290.0	-12	0	13	24.3	19.0	-16	1	3	90.0	90.4	-20	1	6	5.6	4.3
8	0	5	65.3	72.6	-10	0	13	98.1	96.9	-17	1	3	89.3	87.3	-19	1	6	24.2	24.1
10	0	5	45.5	50.2	-8	0	13	28.3	31.5	-14	1	3	21.4	11.6	-18	1	6	9.7	13.7
12	0	5	5.9	4.2	-6	0	13	17.9	21.9	-13	1	3	14.5	8.0	-17	1	6	58.6	62.6
14	0	5	26.1	24.3	-4	0	13	41.7	45.0	-12	1	3	110.7	113.7	-16	1	6	144.8	155.4
16	0	5	97.1	97.1	-2	0	13	13.0	9.5	-11	1	3	88.3	94.3	-15	1	6	139.2	150.5
-20	0	6	19.3	15.1	1	1	0	26.4	17.7	-10	1	3	59.3	64.1	-14	1	6	117.4	122.7
-18	0	6	19.2	17.6	2	1	0	227.6	223.5	-9	1	3	107.8	105.5	-13	1	6	20.6	21.7
-16	0	6	46.1	44.4	3	1	0	165.3	173.2	-8	1	3	279.3	274.6	-12	1	6	88.8	88.8
-14	0	6	50.5	50.9	4	1	0	204.7	221.6	-7	1	3	227.3	215.0	-11	1	6	94.9	95.3

-4	1	100.2	100.1	-18	1	11	11.8	9.3	13	2	1	6.5	17.3	4	2	4	18.0	6.3
-3	1	51.7	51.2	-17	1	11	19.3	22.4	14	2	1	18.4	21.0	5	2	4	45.6	42.9
-2	1	14.0	8.4	-16	1	11	40.7	45.9	15	2	1	98.9	101.2	6	2	4	14.5	15.2
-1	1	13.4	5.0	-15	1	11	6.4	17.5	16	2	1	37.3	37.7	7	2	4	82.6	82.2
0	1	59.1	57.4	-14	1	11	14.2	1.4	17	2	1	104.8	104.0	8	2	4	32.5	53.1
1	1	77.0	79.8	-13	1	11	8.0	5.2	18	2	1	5.6	1.3	9	2	4	31.5	27.8
2	1	99.9	101.9	-12	1	11	41.9	41.4	19	2	1	50.3	46.4	10	2	4	23.4	26.2
3	1	11.0	16.3	-11	1	11	70.8	72.7	20	2	2	9.3	5.0	11	2	4	118.0	123.0
4	1	135.3	139.9	-10	1	11	92.2	99.9	21	2	2	12.9	3.3	12	2	4	66.6	71.6
5	1	154.2	157.7	-9	1	11	50.0	44.9	22	2	2	6.7	2.1	13	2	4	183.0	184.5
6	1	180.0	190.2	-8	1	11	6.6	14.7	23	2	2	18.7	15.5	14	2	4	30.1	25.5
7	1	46.6	43.0	-7	1	11	28.6	28.3	24	2	2	22.5	17.4	15	2	4	24.6	25.1
8	1	14.9	12.2	-6	1	11	51.0	52.6	25	2	2	5.6	1.2	16	2	4	11.0	14.8
9	1	31.4	29.8	-5	1	11	41.7	39.3	26	2	2	36.3	38.6	17	2	4	68.4	67.3
10	1	29.9	29.8	-4	1	11	56.0	56.2	27	2	2	6.2	62.1	18	2	4	35.8	31.4
11	1	9.4	7.0	-3	1	11	42.7	40.1	28	2	2	220.4	219.0	19	2	5	6.0	8.8
12	1	20.2	18.7	-2	1	11	23.3	19.4	29	2	2	59.0	68.5	20	2	5	15.5	14.0
13	1	18.8	13.2	-1	1	11	5.0	0.3	30	2	2	11.5	11.3	21	2	5	31.5	32.2
14	1	5.4	3.2	0	1	11	24.1	28.3	31	2	2	27.8	28.1	22	2	5	115.0	114.1
-20	1	22.9	21.1	1	1	11	42.4	48.2	32	2	2	141.8	149.4	23	2	5	36.4	37.0
-19	1	12.9	13.7	2	1	11	80.5	84.5	33	2	2	41.1	42.5	24	2	5	38.3	39.4
-18	1	27.0	27.4	3	1	11	36.4	38.9	34	2	2	16.4	13.8	25	2	5	17.0	6.6
-17	1	14.4	16.3	4	1	11	18.7	19.2	35	2	2	16.4	7.4	26	2	5	10.0	19.6
-16	1	49.8	51.6	5	1	11	58.9	59.1	36	2	2	93.1	91.9	27	2	5	28.1	28.6
-15	1	48.0	47.0	6	1	11	89.5	96.3	37	2	2	33.6	34.7	28	2	5	175.9	181.3
-14	1	21.5	17.9	-10	1	12	47.3	46.8	38	2	2	346.5	333.2	29	2	5	51.8	48.8
-13	1	70.0	70.8	-15	1	12	43.3	44.3	39	2	2	127.4	123.6	30	2	5	61.2	57.8
-12	1	171.6	170.7	-14	1	12	31.2	34.6	40	2	2	40.2	39.2	31	2	5	46.4	46.3
-11	1	128.7	128.7	-13	1	12	19.9	16.6	41	2	2	22.8	22.0	32	2	5	108.2	109.1
-10	1	65.8	67.2	-12	1	12	73.4	79.2	42	2	2	75.1	78.1	33	2	5	147.3	141.7
-9	1	5.3	11.1	-11	1	12	76.9	74.7	43	2	2	231.7	239.3	34	2	5	42.9	45.1
-8	1	36.0	35.1	-10	1	12	9.6	7.6	44	2	2	55.2	57.8	35	2	5	61.2	58.6
-7	1	12.4	10.8	-9	1	12	6.3	8.7	45	2	2	129.7	136.8	36	2	5	22.2	27.0
-6	1	77.9	76.6	-8	1	12	12.0	2.0	46	2	2	6.6	?	37	2	5	21.0	15.6
-5	1	15.5	13.9	-7	1	12	50.4	50.8	47	2	2	20.3	?	38	2	5	22.9	17.9
-4	1	23.2	15.8	-6	1	12	30.6	29.3	48	2	2	37.2	48.0	39	2	5	119.9	123.1
-3	1	58.6	58.0	-5	1	12	32.2	33.9	49	2	2	200.0	208.9	40	2	5	21.5	23.6
-2	1	129.5	130.6	-4	1	12	5.4	3.6	50	2	2	54.7	57.0	41	2	5	91.2	92.1
-1	1	82.0	82.7	-3	1	12	37.0	34.2	51	2	2	31.9	32.0	42	2	5	67.9	71.5
0	1	136.4	142.5	-2	1	12	36.1	31.2	52	2	2	29.2	29.4	43	2	5	334.0	332.2
1	1	77.1	80.4	-1	1	12	75.2	78.4	53	2	2	144.2	145.0	44	2	5	82.8	85.3
2	1	37.4	42.7	0	1	12	55.0	51.0	54	2	2	10.2	16.7	45	2	5	50.7	50.7
3	1	15.9	14.6	1	1	12	44.5	44.1	55	2	2	67.4	63.8	46	2	5	17.3	2.8
4	1	68.0	74.5	2	1	12	12.1	10.2	56	2	2	35.3	35.9	47	2	5	27.4	30.3
5	1	31.0	41.8	3	1	13	6.3	1.9	57	2	2	5.9	4.8	48	2	5	7.0	9.2
6	1	6.0	8.3	-13	1	13	33.8	35.0	58	2	2	16.6	15.6	49	2	5	5.8	0.7
7	1	12.7	9.0	-12	1	13	34.9	31.9	59	2	2	118.6	107.8	50	2	5	6.4	8.3
8	1	26.8	23.1	-11	1	13	44.2	45.5	60	2	2	46.0	42.8	51	2	5	10.1	6.0
9	1	59.1	57.8	-10	1	13	5.5	3.7	61	2	2	128.5	121.7	52	2	5	56.5	55.3
10	1	103.5	105.9	-9	1	13	76.4	72.5	62	2	3	121.7	121.7	53	2	5		
11	1	52.4	54.9	-8	1	13			63	2	3			54	2	5		

12	1	9	25.1	29.0	-7	1	13	94.0	91.4	-18	2	3	18.6	16.7	16	2	5	32.6	29.6
-20	1	9	82.6	68.5	-6	1	12	103.3	104.1	-17	2	3	53.5	45.9	-21	2	6	26.7	21.7
-19	1	9	72.8	71.9	-5	1	13	34.7	32.4	-16	2	3	40.9	36.3	-20	2	6	11.0	8.4
-18	1	9	69.1	72.7	-4	1	13	21.3	20.0	-15	2	3	82.6	83.6	-19	2	6	18.4	11.8
-17	1	9	21.5	21.9	-3	1	13	30.0	27.3	-14	2	3	25.2	24.0	-18	2	6	20.3	23.8
-16	1	9	6.4	6.9	-2	1	13	23.9	20.7	-13	2	3	6.1	27.2	-17	2	6	21.8	21.1
-15	1	9	14.5	11.8	-1	1	13	5.8	7.0	-12	2	3	20.8	2.0	-16	2	6	19.7	20.2
-14	1	9	14.9	15.2	0	1	13	29.9	29.9	-11	2	3	24.7	12.5	-15	2	6	29.2	26.3
-13	1	9	5.3	1.1	0	2	0	167.1	153.3	-10	2	3	50.5	52.6	-14	2	6	44.3	46.6
-12	1	9	39.6	42.8	1	2	0	544.6	483.2	-8	2	3	85.1	87.0	-13	2	6	160.5	160.6
-11	1	9	43.9	43.7	2	2	0	37.6	37.8	-7	2	3	31.0	325.1	-12	2	6	80.6	83.2
-10	1	9	28.5	27.0	3	2	0	154.3	160.2	-6	2	3	31.3	28.9	-11	2	6	184.9	184.9
-9	1	9	38.0	35.2	4	2	0	97.6	82.4	-5	2	3	334.9	320.9	-10	2	6	25.4	24.0
-8	1	9	191.9	195.3	5	2	0	16.0	101.1	-4	2	3	141.0	135.9	-9	2	6	55.5	57.1
-7	1	9	168.8	158.1	6	2	0	58.1	66.4	-3	2	3	325.6	320.7	-8	2	6	14.2	10.6
-6	1	9	148.6	151.8	7	2	0	23.0	18.3	-2	2	3	50.3	52.7	-7	2	6	5.5	6.5
-5	1	9	5.8	2.2	8	2	0	68.3	74.1	-1	2	3	30.0	32.8	-6	2	6	27.5	28.6
-4	1	9	101.5	102.8	9	2	0	45.7	47.4	0	2	3	14.5	16.3	-5	2	6	34.4	15.8
-3	1	9	81.4	79.6	10	2	0			1	2	3	81.4	78.8	-4	2	6	10.5	11.6

H	K	L	FO	FC	H	K	L	FO	FC	H	K	L	FO	FC	H	K	L	FO	FC
-3	2	6	150.8	188.0	-15	2	10	65.3	65.0	-3	3	1	260.7	262.0	-7	3	4	12.5	7.4
-2	2	6	105.4	110.3	-14	2	10	15.9	6.4	-2	3	1	15.1	11.3	-6	3	4	5.3	3.5
-1	2	6	175.8	169.8	-13	2	10	57.4	60.1	-1	3	1	38.0	38.1	-5	3	4	31.4	29.3
0	2	6	84.8	86.5	-12	2	10	39.9	40.6	0	3	1	13.8	11.8	-4	3	4	77.7	72.8
1	2	6	107.0	106.2	-11	2	10	145.5	153.0	1	3	1	94.5	98.7	-3	3	4	211.8	212.7
2	2	6	16.9	5.7	-10	2	10	19.2	17.4	2	3	1	17.7	14.4	-2	3	4	38.4	37.5
3	2	6	90.0	93.1	-9	2	10	6.0	3.9	3	3	1	127.5	142.7	-1	3	4	195.1	186.5
4	2	6	33.7	34.9	-8	2	10	19.3	10.2	4	3	1	14.4	17.0	0	3	4	12.6	17.6
5	2	6	79.2	83.1	-7	2	10	23.7	22.8	5	3	1	36.2	38.7	1	3	4	37.4	37.2
6	2	6	6.6	1.7	-6	2	10	58.2	59.7	6	3	1	26.8	22.0	2	3	4	33.1	30.9
7	2	6	18.4	18.4	-5	2	10	18.1	17.0	7	3	1	247.4	256.9	3	3	4	158.3	157.4
8	2	6	29.6	31.2	-4	2	10	18.1	17.0	8	3	1	102.4	108.6	4	3	4	71.1	75.2
9	2	6	136.7	139.8	-3	2	10	45.0	44.9	9	3	1	179.0	183.9	5	3	4	78.7	80.9
10	2	6	53.7	57.1	-2	2	10	35.4	38.5	10	3	1	28.0	28.9	6	3	4	17.7	11.9
11	2	6	83.6	89.0	-1	2	10	94.7	94.2	11	3	1	58.7	62.6	7	3	4	7.3	10.9
12	2	6	5.9	11.4	0	2	10	46.4	48.4	12	3	1	41.2	41.6	8	3	4	19.2	20.8
13	2	6	47.8	48.1	1	2	10	108.9	108.9	13	3	1	6.4	7.1	9	3	4	142.6	151.8
14	2	6	30.3	27.9	2	2	10	6.2	2.4	14	3	1	6.0	8.1	10	3	4	44.9	48.7
15	2	6	48.4	48.3	3	2	10	5.7	6.5	15	3	1	31.7	30.0	11	3	4	64.4	65.7
16	2	6	27.8	35.7	4	2	10	22.2	17.2	16	3	1	5.7	6.3	12	3	4	28.4	23.1
17	2	6	128.9	134.9	5	2	10	27.3	26.8	17	3	1	96.4	93.1	13	3	4	91.4	90.0
18	2	6	34.1	33.5	6	2	10	6.4	5.6	18	3	1	26.9	19.6	14	3	4	6.3	9.2
19	2	6	6.2	10.3	7	2	10	29.2	29.2	19	3	1	78.9	74.8	15	3	4	64.9	64.1
20	2	6	6.1	4.2	8	2	10	13.9	2.6	20	3	1	6.5	10.6	16	3	4	6.7	10.3
14	2	6	38.7	40.8	-17	2	10	36.9	38.2	-19	3	2	14.6	15.6	-20	3	4	55.0	54.3
13	2	6	5.5	3.4	-16	2	10	4.7	2.7	-18	3	2	6.0	9.1	-19	3	4	122.5	119.4
12	2	6	16.1	19.3	-15	2	10	5.7	4.6	-17	3	2	112.2	103.4	-18	3	4	13.1	12.4
11	2	6	29.2	24.1	-14	2	10	5.2	3.1	-16	3	2	72.2	68.6	-17	3	4	5.9	1.3
10	2	6	49.0	52.7	-13	2	10	5.2	5.0	-15	3	2	161.7	151.8	-16	3	4	21.0	25.3
9	2	6	21.3	18.3	-12	2	10	21.7	22.5	-14	3	2	20.9	15.8	-15	3	4	51.6	52.2
8	2	6	143.2	142.2	-11	2	10	63.3	67.3	-13	3	2	118.2	115.9	-14	3	4	22.1	25.7
7	2	6	86.0	90.2	-10	2	10	12.9	4.0	-12	3	2	77.5	74.9	-13	3	4	19.9	11.7
6	2	6	44.5	44.9	-9	2	10	45.9	32.3	-11	3	2	221.6	217.9	-12	3	4	14.7	8.0
5	2	6	81.0	80.1	-8	2	10	195.2	192.6	-10	3	2	19.8	28.5	-11	3	4	5.8	5.1
4	2	6	37.5	38.5	-7	2	10	40.7	41.3	-9	3	2	6.7	83.5	-10	3	4	28.8	25.3
3	2	6	202.2	159.8	-6	2	10	39.5	39.6	-8	3	2	21.3	24.1	-9	3	4	194.5	194.6
2	2	6	6.0	14.8	-5	2	10	9.9	7.9	-7	3	2	28.1	25.1	-8	3	4	119.7	119.6
1	2	6	13.8	10.1	-4	2	10	81.6	81.8	-6	3	2	107.6	114.8	-7	3	4	267.1	262.9
0	2	6	30.0	29.7	-3	2	10	9.3	8.1	-5	3	2	68.8	73.5	-6	3	4	52.1	50.7
1	2	6	36.6	43.8	-2	2	10	13.8	19.0	-4	3	2	223.2	214.6	-5	3	4	143.1	142.6
2	2	6	138.2	138.8	-1	2	10	18.0	12.2	-3	3	2	18.5	17.8	-4	3	4	121.5	124.3
3	2	6	138.2	138.8	1	2	10	16.0	11.5	-2	3	2	343.4	326.2	-3	3	4	225.1	217.4
																		34.0	31.0

Table with 15 columns and multiple rows of numerical data. The columns contain values ranging from -12 to 4, with associated calculations and results. The table is organized into several groups of rows, likely representing different categories or stages of a process. The values are often formatted with a period as a decimal separator.

-11	2	9	139.2	143.6	18	3	0	19.4	19.7	12	3	4	13.8	11.4	14	3	6	33.2	34.9
-10	2	9	48.6	52.5	19	3	0	16.7	15.0	13	3	3	11.6	6.1	-20	3	7	9.7	6.2
-8	2	9	16.9	16.0	-20	3	1	45.6	41.1	14	3	3	21.8	17.5	-19	3	7	5.8	1.5
-7	2	9	84.7	85.5	-19	3	1	87.8	77.0	15	3	3	71.9	68.5	-18	3	7	9.9	3.7
0	2	9	26.7	22.6	-18	3	1	17.7	9.1	16	3	3	32.5	27.9	-17	3	7	86.1	89.8
1	2	9	93.2	91.3	-17	3	1	70.3	64.2	17	3	3	103.9	96.7	-16	3	7	31.6	30.4
2	2	9	40.7	40.0	-16	3	1	36.9	35.6	-20	3	4	6.1	9.5	-15	3	7	42.5	41.1
3	2	9	35.9	37.2	-15	3	1	86.3	83.6	-19	3	4	13.0	6.8	-14	3	7	5.4	5.1
4	2	9	6.6	13.2	-14	3	1	16.6	20.9	-18	3	4	25.9	24.0	-13	3	7	9.2	12.7
5	2	9	159.1	158.7	-13	3	1	28.4	25.8	-17	3	4	17.3	18.9	-12	3	7	50.5	46.0
6	2	9	50.1	50.1	-12	3	1	6.3	10.0	-16	3	4	9.5	3.5	-11	3	7	144.2	146.2
7	2	9	77.7	80.6	-11	3	1	18.9	25.3	-15	3	4	18.5	13.5	-10	3	7	25.8	27.2
8	2	9	6.3	13.5	-10	3	1	15.8	19.0	-14	3	4	18.4	6.4	-9	3	7	45.4	43.6
-9	2	9	51.7	54.6	-9	3	1	225.0	229.1	-13	3	4	171.3	185.0	-8	3	7	60.2	57.5
9	2	9	28.4	26.7	-8	3	1	105.9	108.7	-12	3	4	71.8	75.2	-7	3	7	150.6	151.2
10	2	9	6.7	8.0	-7	3	1	144.2	152.7	-11	3	4	139.1	148.5	-6	3	7	18.4	18.0
-18	2	10	15.5	13.6	-6	3	1	19.7	4.5	-10	3	4	5.4	0.7	-5	3	7	153.8	152.0
-17	2	10	32.4	34.5	-5	3	1	323.6	334.3	-9	3	4	51.6	96.0	-4	3	7	22.5	21.3
-16	2	10	26.1	26.0	-4	3	1	172.6	176.7	-8	3	4	33.3	31.8	-3	3	7	68.6	67.8

-4	3	11	5.9	11.1	9	4	2	98.9	99.5	14	4	5	10.0	11.8	-6	4	10	28.0	28.6
-3	3	11	47.2	45.3	10	4	2	93.2	94.4	-19	4	6	14.2	14.6	-5	4	10	41.4	44.5
-2	3	11	10.6	14.2	11	4	2	27.7	27.6	-18	4	6	6.2	3.7	-4	4	10	6.1	4.0
-1	3	11	5.5	2.0	12	4	2	79.8	72.6	-17	4	6	43.2	43.0	-3	4	10	5.9	11.1
0	3	11	5.6	1.5	13	4	2	82.9	81.9	-16	4	6	22.6	20.3	-2	4	10	44.9	42.2
1	3	11	67.6	62.9	14	4	2	69.9	65.8	-15	4	6	11.8	4.6	-1	4	10	80.9	78.0
2	3	11	22.7	23.2	15	4	2	71.3	61.9	-14	4	6	23.2	22.8	0	4	10	72.1	67.8
3	3	11	56.2	52.9	16	4	2	19.6	17.5	-13	4	6	94.3	98.6	1	4	10	39.4	42.5
4	3	11	15.9	12.1	17	4	2	8.7	4.2	-12	4	6	161.5	167.9	2	4	10	51.0	47.9
-13	3	12	19.2	24.1	-19	4	3	66.3	57.5	-11	4	6	83.1	86.2	3	4	10	12.6	13.8
-12	3	12	27.2	29.3	-18	4	3	6.8	16.0	-10	4	6	41.2	40.7	4	4	10	36.8	33.1
-11	3	12	97.8	57.3	-17	4	3	16.2	14.7	-9	4	6	11.1	13.7	5	4	10	5.7	2.5
-10	3	12	28.6	25.8	-16	4	3	59.6	58.1	-8	4	6	46.8	45.6	6	4	10	14.7	5.5
-9	3	12	18.0	15.4	-15	4	3	42.8	41.6	-7	4	6	8.2	11.4	6	4	11	7.8	6.6
-8	3	12	6.3	6.3	-14	4	3	64.7	58.1	-6	4	6	29.8	26.3	-14	4	11	10.7	17.2
-7	3	12	14.9	11.8	-13	4	3	11.9	4.2	-5	4	6	28.6	28.8	-13	4	11	17.1	15.0
-6	3	12	5.5	11.1	-12	4	3	6.0	2.2	-4	4	6	65.7	68.7	-12	4	11	26.1	25.6
-5	3	12	59.1	59.4	-11	4	3	30.9	30.2	-3	4	6	89.1	87.4	-11	4	11	36.3	38.3
-4	3	12	6.0	9.4	-10	4	3	34.5	29.5	-2	4	6	101.9	99.8	-10	4	11	30.5	31.3

H	K	L	FO	FC	H	K	L	FO	FC	H	K	L	FO	FC	H	K	L	FO	FC
-8	4	11	91.5	89.1	-13	5	3	19.0	9.2	2	5	6	134.5	135.3	2	6	6	77.6	71.7
-7	4	11	76.7	76.5	-12	5	3	97.2	80.8	3	5	6	35.0	34.2	3	6	6	71.2	70.4
-6	4	11	109.8	106.1	-11	5	3	6.7	14.7	4	5	6	23.1	31.5	4	6	6	73.7	71.1
-5	4	11	21.7	17.3	-10	5	3	51.6	50.7	5	5	6	10.7	15.7	5	6	6	25.7	23.8
-4	4	11	42.2	42.4	-9	5	3	47.1	44.1	6	5	6	25.4	18.4	6	6	6	20.2	16.8
-3	4	11	27.9	26.1	-8	5	3	161.1	164.5	7	5	6	6.4	2.3	7	6	6	22.8	22.4
-2	4	11	24.9	22.9	-7	5	3	17.6	17.6	8	5	6	53.6	59.0	8	6	6	6.2	5.0
-1	4	11	14.0	10.9	-6	5	3	154.0	165.0	9	5	6	6.8	5.9	9	6	6	10.0	6.9
0	4	11	16.9	14.9	-5	5	3	60.6	51.4	10	5	6	6.0	2.4	10	6	6	72.6	79.4
1	4	11	6.1	4.3	-4	5	3	49.6	49.9	11	5	6	21.0	2.4	11	6	6	44.6	50.1
2	4	11	19.9	18.1	-3	5	3	20.6	20.5	12	5	6	5.8	2.1	12	6	6	99.3	100.4
3	4	11	54.2	49.6	-2	5	3	37.3	42.6	13	5	6	61.7	66.9	13	6	6	69.2	69.8
-11	4	12	5.7	3.8	-1	5	3	7.1	2.3	14	5	6	6.0	4.5	14	6	6	10.5	2.4
-10	4	12	22.5	19.4	0	5	3	25.1	24.6	15	5	6	14.7	4.1	15	6	6	40.7	35.7
-9	4	12	15.3	12.8	1	5	3	14.4	8.9	16	5	6	5.7	3.9	16	6	6	34.5	32.8
-8	4	12	15.5	6.2	2	5	3	32.0	29.7	17	5	6	64.9	65.2	17	6	6	5.7	4.0
-7	4	12	11.4	11.3	3	5	3	25.4	15.4	18	5	6	5.6	9.4	18	6	6	6.8	10.5
-6	4	12	17.1	18.8	4	5	3	26.2	222.9	19	5	6	88.9	88.6	19	6	6	6.9	8.5
-5	4	12	10.8	15.1	5	5	3	6.9	15.2	20	5	6	38.0	40.7	20	6	6	34.0	28.5
-4	4	12	45.8	44.4	6	5	3	134.6	159.4	21	5	6	61.3	60.9	21	6	6	45.8	41.0
-3	4	12	65.3	62.6	7	5	3	36.2	34.7	22	5	6	117.4	118.9	22	6	6	28.6	26.3
-2	4	12	97.5	92.9	8	5	3	79.3	78.8	23	5	6	76.0	74.1	23	6	6	110.8	109.6
1	5	0	79.6	75.6	9	5	3	16.7	12.2	24	5	6	15.7	8.9	24	6	6	79.1	82.6
2	5	0	150.4	148.9	10	5	3	59.9	55.4	25	5	6	43.7	39.8	25	6	6	72.5	71.5
3	5	0	28.5	28.9	11	5	3	31.3	28.6	26	5	6	15.4	12.9	26	6	6	152.4	142.3
4	5	0	149.9	143.2	12	5	3	11.5	3.8	27	5	6	6.4	3.5	27	6	6	15.0	14.4
5	5	0	28.8	31.0	13	5	3	12.7	10.3	28	5	6	6.5	6.5	28	6	6	22.6	7.3
6	5	0	19.1	13.2	14	5	3	27.5	27.3	29	5	6	27.2	31.1	29	6	6	6.1	4.2
7	5	0	8.6	3.0	15	5	3	14.9	8.0	30	5	6	11.3	3.9	30	6	6	70.7	69.0
8	5	0	86.2	95.7	16	5	3	13.9	15.1	31	5	6	69.1	68.6	31	6	6	24.8	21.3
9	5	0	12.1	5.1	17	5	3	31.8	28.9	32	5	6	6.7	4.3	32	6	6	12.6	9.1
10	5	0	83.2	85.4	18	5	3	19.9	23.9	33	5	6	101.1	102.1	33	6	6	34.0	31.2
11	5	0	22.1	22.8	19	5	3	30.5	23.9	34	5	6	6.7	4.3	34	6	6	5.8	5.0
12	5	0	112.5	113.3	20	5	3	83.9	81.1	35	5	6	18.2	142.5	35	6	6	68.0	70.2
13	5	0	21.7	13.3	21	5	3	30.0	21.8	36	5	6	7.5	21.1	36	6	6	140.2	145.8
14	5	0	104.6	107.1	22	5	3	156.5	162.1	37	5	6	10.0	4.9	37	6	6	118.8	126.8
15	5	0	30.8	28.9	23	5	3	20.2	17.7	38	5	6	14.6	0.6	38	6	6	89.5	91.2
16	5	0	10.3	23.0	24	5	3	9.5	1.2	39	5	6	31.4	27.2	39	6	6	49.9	56.0
17	5	0	15.1	15.2	25	5	3	15.8	18.2	40	5	6	36.0	35.1	40	6	6	62.5	63.4
18	5	0	14.5	8.2	26	5	3	63.7	66.2	41	5	6	15.1	14.2	41	6	6	51.9	53.0
19	5	0	84.7	81.1	27	5	3	10.1	4.1	42	5	6	23.6	21.8	42	6	6	67.1	70.1
20	5	0	6.7	5.8	28	5	3	36.0	32.9	43	5	6	24.4	17.3	43	6	6	6.4	14.2
21	5	1	54.4	49.2	29	5	3	35.7	32.5	44	5	6	130.1	132.8	44	6	6	13.6	4.5

3	5	3	43.8	53.5	-17	5	6	11.1	3.7	-2	5	10	114.8	112.9	1	6	21.0	18.4
4	5	2	79.5	90.4	-16	5	6	105.4	109.0	-1	5	10	5.9	0.9	2	6	72.4	92.3
5	5	2	7.6	7.3	-15	5	6	16.5	7.2	0	5	10	53.6	52.1	3	6	26.1	19.7
6	5	2	6.8	15.1	-14	5	6	86.4	87.3	1	5	10	21.6	16.5	4	6	56.5	60.8
7	5	2	6.7	7.6	-13	5	6	39.7	40.7	2	5	10	84.3	81.1	5	6	34.7	35.0
8	5	2	37.7	79.7	-12	5	6	63.4	68.7	3	5	10	6.7	12.8	6	6	79.6	83.4
9	5	2	17.1	18.7	-11	5	6	13.8	5.7	-11	5	11	5.6	7.0	7	6	44.6	48.2
10	5	2	59.5	63.9	-10	5	6	88.0	89.0	-10	5	11	82.1	80.7	8	6	110.3	111.9
11	5	2	24.1	22.1	-9	5	6	13.4	13.9	-9	5	11	24.7	27.6	9	6	88.1	89.2
12	5	2	160.7	154.9	-8	5	6	36.7	28.4	-8	5	11	19.2	16.9	10	6	10.7	17.0
13	5	2	21.2	27.4	-7	5	6	5.4	9.0	-7	5	11	11.8	13.0	11	6	12.4	12.1
14	5	2	50.3	48.9	-6	5	6	5.7	8.3	-6	5	11	41.3	41.6	12	6	18.2	8.3
15	5	2	5.0	2.7	-5	5	6	30.8	26.4	-5	5	11	21.8	21.4	13	6	6.2	9.8
15	5	2	82.2	77.2	-4	5	6	147.3	140.9	-4	5	11	49.1	46.9	-16	6	76.9	69.7
15	5	3	78.9	68.6	-3	5	6	129.1	24.8	-3	5	11	5.0	5.5	-15	6	64.9	61.4
17	5	3	15.4	6.9	-2	5	6	103.1	94.4	-2	5	11	19.5	15.5	-14	6	57.1	50.4
16	5	3	67.4	67.4	-1	5	6	6.9	13.1	-1	5	11	14.0	6.3	-13	6	42.6	42.6
15	5	3	14.9	13.9	0	5	6	194.2	190.7	0	6	0	212.2	205.1	-12	6	58.9	57.3
14	5	3	5.7	7.7	1	5	6	16.5	20.6	1	6	0	130.4	126.2	-11	4	59.9	58.9

H	K	L	FO	FC	H	K	L	FO	FC	H	K	L	FO	FC	H	K	L	FO	FC
-10	6	4	84.5	86.0	-1	6	8	6.4	1.8	0	7	3	11.7	2.9	9	8	0	20.4	22.4
-9	6	4	27.2	25.0	6	6	59.6	55.9	0	7	3	13.0	31.1	10	8	0	6.8	7.1	
-8	6	4	6.8	17.0	1	6	91.7	84.6	2	7	3	7.0	7.6	-10	8	1	6.8	10.1	
-7	6	4	12.8	5.9	2	6	72.9	70.1	3	7	3	40.6	52.7	-9	8	1	27.3	29.6	
-6	6	4	30.7	27.7	3	6	16.1	4.7	4	7	3	22.4	24.1	-8	8	1	36.8	33.1	
-5	6	4	15.4	17.4	4	6	6.0	1.8	5	7	3	131.4	141.8	-7	8	1	104.8	98.4	
-4	6	4	105.8	57.3	5	6	13.2	9.4	6	7	3	47.1	46.9	-6	8	1	14.2	19.7	
-3	6	4	91.2	54.4	-12	6	26.7	24.8	7	7	3	16.2	9.5	-5	8	1	58.9	55.2	
-2	6	4	18.2	10.0	-11	6	45.9	44.7	8	7	3	13.5	11.6	-4	8	1	10.4	3.0	
-1	6	4	66.1	64.3	-10	6	68.2	66.5	9	7	3	57.7	56.7	-3	8	1	35.0	31.0	
0	6	4	142.8	153.3	-9	6	5.6	5.3	10	7	3	35.5	35.2	-2	8	1	5.9	4.5	
1	6	4	129.5	140.4	-8	6	6.2	12.0	11	7	3	15.4	8.4	-1	8	1	26.3	22.3	
2	6	4	57.7	102.5	-7	6	29.0	29.8	-13	7	4	89.9	82.3	0	8	1	5.4	1.0	
3	6	4	24.2	20.5	-6	6	70.4	67.2	-12	7	4	27.6	31.4	1	8	1	13.3	9.2	
4	6	4	21.9	23.6	-5	6	15.8	14.2	-11	7	4	64.2	64.4	2	8	1	17.7	12.0	
5	6	4	7.1	14.7	-4	6	55.1	51.4	-10	7	4	14.2	2.5	3	8	1	65.9	62.5	
6	6	4	6.7	4.0	-3	6	23.7	22.5	-9	7	4	39.7	39.3	4	8	1	37.3	40.7	
7	6	4	22.7	23.0	-2	6	6.2	0.3	-8	7	4	7.0	13.7	5	8	1	105.9	105.1	
8	6	4	37.9	36.2	-1	6	8.9	1.4	-7	7	4	7.2	4.4	6	8	1	5.9	6.8	
9	6	4	13.0	11.4	0	6	27.9	23.8	-6	7	4	17.8	8.9	7	8	1	8.1	2.5	
10	6	4	31.7	33.7	1	6	24.8	23.9	-5	7	4	7.0	10.0	8	8	1	35.9	32.3	
11	6	4	25.9	27.5	2	6	50.8	45.4	-4	7	4	7.9	3.8	9	8	1	57.1	62.4	
12	6	4	95.4	91.8	3	6	18.5	12.7	-3	7	4	83.6	82.6	-10	8	2	14.4	4.9	
-1	6	5	51.2	51.8	-9	6	5.6	4.7	-2	7	4	69.2	76.5	-9	8	2	45.6	41.8	
-2	6	5	5.9	14.3	-8	6	6.4	5.3	-1	7	4	62.8	74.7	-8	8	2	21.1	14.7	
-3	6	5	16.7	10.0	-7	6	5.6	2.2	0	7	4	35.9	40.6	-7	8	2	7.0	9.8	
-4	6	5	12.2	10.5	-6	6	38.3	36.8	1	7	4	13.9	24.8	-6	8	2	12.6	5.9	
-5	6	5	40.7	41.1	-5	6	8.4	7.9	2	7	4	45.3	48.6	-5	8	2	10.6	8.1	
-6	6	5	53.4	57.2	-4	6	30.9	28.4	3	7	4	52.7	56.5	-4	8	2	30.7	29.2	
-7	6	5	63.9	66.3	-3	6	21.9	17.7	4	7	4	7.1	11.5	-3	8	2	90.0	85.6	
-8	6	5	42.0	46.2	-2	6	51.8	51.1	5	7	4	25.6	36.9	-2	8	2	22.1	20.6	
-9	6	5	52.4	52.1	-1	6	16.0	14.5	6	7	4	12.9	2.3	-1	8	2	79.1	77.8	
-10	6	5	67.3	66.1	1	6	36.2	35.7	7	7	4	5.8	5.3	0	8	2	11.0	3.1	
-11	6	5	133.4	133.5	2	6	79.6	75.8	8	7	4	28.4	25.0	1	8	2	23.7	26.8	
-12	6	5	23.5	20.2	3	6	97.8	95.5	9	7	4	73.2	69.3	2	8	2	13.8	20.0	
-13	6	5	64.5	61.9	4	6	14.6	9.9	-13	7	5	13.2	8.0	3	8	2	72.3	75.6	
-14	6	5	22.5	26.0	5	6	33.7	38.9	-12	7	5	6.5	7.2	4	8	2	32.5	28.5	
-15	6	5	21.9	19.7	6	6	9.9	2.1	-11	7	5	43.1	4.7	5	8	2	14.0	18.5	
0	6	5	7.5	5.7	7	6	6.4	13.0	-10	7	5	69.2	48.4	6	8	2	6.7	5.6	
1	6	5	21.2	25.7	8	6	25.1	26.4	-9	7	5	69.2	72.6	7	8	2	17.2	11.8	
2	6	5	36.7	35.4	9	6	68.8	74.0	-8	7	5	34.2	32.8	8	8	2	5.9	5.7	
3	6	5	31.8	28.5	10	6	19.8	16.6	-7	7	5	104.3	104.4	-10	8	3	21.8	16.9	
3	6	5	27.6	24.0	11	6	15.2	14.3	-6	7	5	5.5	1.8	-9	8	3	78.2	81.1	

4	6	79.7	95.7	12	7	7	0	6.5	15.8	-5	7	5	64.6	62.1	-8	8	3	35.1	32.2
5	6	102.2	197.4	13	7	7	0	72.6	74.9	-4	7	5	7.4	8.0	-7	8	3	52.2	49.7
6	6	118.2	117.5	-13	7	7	1	15.8	15.1	-3	7	5	95.3	88.4	-6	8	3	7.8	8.5
7	6	13.9	5.9	-12	7	7	1	7.2	4.8	-2	7	5	16.4	17.1	-5	8	3	66.9	66.6
8	6	6.2	1.8	-11	7	7	1	16.8	12.6	-1	7	5	6.9	7.2	-4	8	3	48.6	47.2
9	6	38.6	30.1	-10	7	7	1	49.0	50.6	0	7	5	14.0	8.7	-3	8	3	74.6	70.9
10	6	44.9	38.9	-9	7	7	1	85.6	88.1	1	7	5	18.3	25.6	-2	8	3	5.5	1.0
11	6	13.3	12.7	-8	7	7	1	11.0	13.4	2	7	5	42.0	47.9	-1	8	3	9.0	1.3
-15	6	6.7	12.4	-7	7	7	1	56.9	57.8	3	7	5	35.5	61.3	0	8	3	14.9	2.6
-14	6	49.0	55.0	-6	7	7	1	36.8	31.4	4	7	5	32.0	33.0	1	8	3	25.5	29.0
-13	6	39.7	44.0	-5	7	7	1	134.9	133.3	5	7	5	43.7	31.8	2	8	3	12.7	1.6
-12	6	95.5	98.3	-4	7	7	1	17.2	20.5	6	7	5	52.9	42.4	3	8	3	58.6	63.9
-11	6	63.4	65.7	-3	7	7	1	104.4	101.7	7	7	5	33.3	26.5	4	8	3	6.7	2.5
-10	6	18.7	17.5	-2	7	7	1	17.4	20.2	8	7	5	33.3	26.5	5	8	3	7.0	3.7
-9	6	18.5	21.7	-1	7	7	1	5.3	9.5	-12	7	6	13.5	9.8	6	8	3	15.2	23.3
-8	6	26.9	25.6	0	7	7	1	5.7	5.4	-11	7	6	61.3	60.1	7	8	3	74.1	77.7
-7	6	16.6	2.6	1	7	7	1	39.6	39.9	-10	7	6	25.5	27.6	8	8	4	6.3	2.1
-6	6	30.0	32.2	2	7	7	1	47.9	48.7	-9	7	6	33.6	35.2	-9	8	4	32.5	34.3
-5	6	6.5	6.0	3	7	7	1	44.1	46.2	-8	7	6	16.5	7.3	-8	8	4	7.7	0.3
-4	6	11.8	7.7	4	7	7	1	11.1	7.0	-7	7	6	9.6	2.3	-7	8	4	11.1	2.0
-3	6	55.1	50.5	5	7	7	1	14.1	17.1	-6	7	6	14.1	24.8	-6	8	4	7.1	16.6
-2	6	126.3	117.6	6	7	7	1	78.8	82.4	-5	7	6	37.0	37.9	-5	8	4	41.7	42.0
-1	6	24.8	25.7	7	7	7	1	101.6	108.7	-4	7	6	36.2	36.9	-4	8	4	14.1	22.1
0	6	90.4	89.5	8	7	7	1	25.7	25.8	-3	7	6	109.0	102.7	-3	8	4	51.0	58.2
1	6	44.8	47.2	9	7	7	1	65.3	81.6	-2	7	6	6.5	3.1	-2	8	4	22.2	20.5
2	6	24.2	24.0	10	7	7	1	14.2	17.7	-1	7	6	36.3	33.3	-1	8	4	43.7	50.0
3	6	10.6	16.4	11	7	7	1	27.9	25.8	0	7	6	22.9	13.9	0	8	4	57.6	56.6
4	6	46.8	48.0	12	7	7	1	11.1	3.1	1	7	6	127.9	129.8	1	8	4	87.4	101.6
5	6	35.4	36.7	-14	7	7	2	28.0	23.1	2	7	6	33.7	32.5	1	8	4	7.3	11.3
6	6	12.8	4.0	-13	7	7	2	55.0	52.1	3	7	6	30.1	18.9	2	8	4	20.8	22.0
7	6	5.9	8.6	-12	7	7	2	7.7	17.1	4	7	6	12.3	12.4	3	8	4	25.3	23.8
8	6	34.7	31.0	-11	7	7	2	82.5	85.1	5	7	6	11.1	14.5	4	8	4	7.3	3.1
9	6	42.0	41.5	-10	7	7	2	44.3	39.8	6	7	6	5.9	1.6	5	8	4	8.2	3.1
-15	6	11.9	15.3	-8	7	7	2	7.7	3.5	-11	7	7	62.6	60.9	-9	8	5	18.5	14.7
-14	6	5.5	4.4	-7	7	7	2	11.4	9.4	-10	7	7	35.3	35.7	-8	8	5	33.0	33.9
-13	6	16.0	16.1	-6	7	7	2	25.9	25.2	-9	7	7	17.9	13.7	-7	8	5	73.3	70.0
-12	6	20.6	20.6	-5	7	7	2	49.8	48.2	-8	7	7	19.8	19.7	-6	8	5	11.5	5.0
-11	6	24.3	26.3	-4	7	7	2	19.8	20.6	-7	7	7	60.8	62.1	-5	8	5	77.1	71.4
-10	6	33.6	34.6	-3	7	7	2	86.2	84.6	-6	7	7	59.3	56.3	-4	8	5	6.3	5.3
-9	6	25.6	29.3	-2	7	7	2	30.4	29.8	-4	7	7	33.6	26.2	-3	8	5	7.1	5.3
-8	6	121.7	121.4	-1	7	7	2	111.5	115.2	-5	7	7	63.4	58.9	-2	8	5	14.7	9.7
-7	6	111.5	109.6	0	7	7	2	38.0	38.6	-3	7	7	25.3	24.7	-1	8	5	11.3	6.5
-6	6	54.2	54.0	1	7	7	2	157.0	162.2	-2	7	7	18.8	10.3	0	8	5	7.0	4.9
-5	6	67.4	63.0	2	7	7	2	41.1	41.2	-1	7	7	10.9	6.9	1	8	5	22.8	26.1
-4	6	32.4	24.2	3	7	7	2	26.0	20.5	0	7	7	12.9	14.9	2	8	5	7.6	13.4
-3	6	74.6	69.2	4	7	7	2	6.1	1.3	1	7	7	41.1	38.0	3	8	5	14.7	20.1
-2	6	28.5	35.9	5	7	7	2	23.5	27.4	2	7	7	17.4	13.9	4	8	5	25.8	28.3
-1	6	15.9	4.5	6	7	7	2	15.9	15.8	3	7	7	7.0	3.1	-7	8	6	5.7	0.2
0	6	11.3	1.2	7	7	7	2	28.2	29.0	4	7	7	9.4	9.5	-6	8	6	6.5	3.8
1	6	6.7	5.6	8	7	7	2	15.0	9.8	-9	7	7	15.7	6.6	-5	8	6	13.7	15.1
2	6	68.8	64.4	-9	7	7	2	25.6	30.0	-8	7	8	6.1	2.1	-4	8	6	27.8	20.6

