

SOME SCALES FROM THE BIOSPHERE OF MT. MERU

Praveen S. Venkataramana

These scales are not octave-repeating and are obtained by interpolating between elements of the Meru sequences themselves, by dividing them by two. These are suitable for the design of musical instruments like kalimbas/mbiras and metallophones.

These tables are given in terms of relative pitch (from the Meru sequence) and octave-reduced cents. Tones from the unaveraged Meru sequence are bolded.

MERU THREE (a.k.a. Meta-Slendro)

ORIGINAL SEED (4,5,7)

Pitch	4	4.5	5	6	7	8	9	10.5	12	14	16	18.5
Cents	0.0	203.9	386.3	702.0	968.8	0.0	203.9	470.8	702.0	968.8	0.0	251.3
Pitch	21	24.5	28	32.5	37	43	49	57	65	75.5	86	100
Cents	470.8	737.7	968.8	26.8	251.3	511.5	737.7	999.5	26.8	286.1	511.5	772.6

5,6,9 SEED

Pitch	5	5.5	6	7.5	9	10	11	13	15	17.5	20	23
Cents	0.0	165.0	315.6	702.0	1017.6	0.0	165.0	454.2	702.0	968.8	0.0	242.0
Pitch	26	30.5	35	40.5	46	53.5	61	71	81	94	107	124.5
Cents	454.2	730.6	968.8	21.5	242.0	503.4	730.6	993.4	21.5	279.2	503.4	765.7

5,7,8 SEED

Pitch	5	6	7	7.5	8	10	12	13.5	15	17.5	20	23.5
Cents	0.0	315.6	582.5	702.0	813.7	0.0	315.6	519.6	702.0	968.8	0.0	279.2
Pitch	27	31	35	41	47	54.5	62	72	82	95.5	109	126.5
Cents	519.6	758.7	968.8	42.7	279.2	535.5	758.7	1017.6	42.7	306.6	535.5	793.3

6,8,11 SEED

Pitch	6	7	8	9.5	11	12.5	14	16.5	19	22	25	29
Cents	0.0	266.9	498.0	795.6	1049.4	70.7	266.9	551.3	795.6	1049.4	70.7	327.6
Pitch	33	38.5	44	51	58	67.5	77	89.5	102	118.5	135	157
Cents	551.3	818.2	1049.4	105.0	327.6	590.2	818.2	1078.6	105.0	364.5	590.2	851.6

7,10,11 SEED

Pitch	7	8.5	10	10.5	11	14	17	19	21	24.5	28	33
Cents	0.0	336.1	617.5	702.0	782.5	0.0	336.1	528.7	702.0	968.8	0.0	284.4
Pitch	38	43.5	49	57.5	66	76.5	87	101	115	134	153	177.5
Cents	528.7	762.7	968.8	45.8	284.4	540.0	762.7	1021.0	45.8	310.5	540.0	797.2

7,8,13 SEED

Pitch	7	7.5	8	10.5	13	14	15	18	21	24.5	28	32
Cents	0.0	119.4	231.2	702.0	1071.7	0.0	119.4	435.1	702.0	968.8	0.0	231.2
Pitch	36	42.5	49	56.5	64	74.5	85	99	113	131	149	173.5
Cents	435.1	722.4	968.8	15.4	231.2	494.2	722.4	986.4	15.4	271.3	494.2	757.7

7,8,11 SEED

Pitch	7	7.5	8	9.5	11	13	15	17	19	22.5	26	30
Cents	0.0	119.4	231.2	528.7	782.5	1071.7	119.4	336.1	528.7	821.4	1071.7	119.4
Pitch	34	39.5	45	52.5	60	69.5	79	92	105	122	139	161.5
Cents	336.1	595.7	821.4	1088.3	119.4	373.9	595.7	859.4	1088.3	148.1	373.9	633.6

7,10,12 SEED

Pitch	7	8.5	10	11	12	14.5	17	19.5	22	25.5	29	34
Cents	0.0	336.1	617.5	782.5	933.1	60.8	336.1	573.7	782.5	1038.1	60.8	336.1
Pitch	39	45	51	59.5	68	79	90	104.5	119	138.5	158	183.5
Cents	573.7	821.4	1038.1	105.0	336.1	595.7	821.4	1080.0	105.0	367.7	595.7	854.7

8,11,13 SEED

Pitch	8	9.5	11	12	13	16	19	21.5	24	28	32	37.5
Cents	0.0	297.5	551.3	702.0	840.5	0.0	297.5	511.5	702.0	968.8	0.0	274.6
Pitch	43	49.5	56	65.5	75	87	99	115	131	152.5	174	202
Cents	511.5	755.2	968.8	40.1	274.6	531.5	755.2	1014.6	40.1	303.2	531.5	789.9

8,9,15 SEED

Pitch	8	8.5	9	12	15	16	17	20.5	24	28	32	36.5
Cents	0.0	105.0	203.9	702.0	1088.3	0.0	105.0	429.1	702.0	968.8	0.0	227.8
Pitch	41	48.5	56	64.5	73	85	97	113	129	149.5	170	198
Cents	429.1	719.9	968.8	13.5	227.8	491.3	719.9	984.2	13.5	268.8	491.3	755.2

9,13,14 SEED

Pitch	9	11	13	13.5	14	18	22	24.5	27	31.5	36	42.5
Cents	0.0	347.4	636.6	702.0	764.9	0.0	347.4	533.7	702.0	968.8	0.0	287.4
Pitch	49	56	63	74	85	98.5	112	130	148	172.5	197	228.5
Cents	533.7	764.9	968.8	47.4	287.4	542.6	764.9	1022.9	47.4	312.6	542.6	799.4

9,11,16 SEED

Pitch	9	10	11	13.5	16	18	20	23.5	27	31.5	36	41.5
Cents	0.0	182.4	347.4	702.0	996.1	0.0	182.4	461.6	702.0	968.8	0.0	246.1
Pitch	47	55	63	73	83	96.5	110	128	146	169.5	193	224.5
Cents	461.6	733.7	968.8	23.9	246.1	507.0	733.7	996.1	23.9	282.3	507.0	768.8

10,13,17 SEED

Pitch	10	11.5	13	15	17	20	23	26.5	30	35	40	46.5
Cents	0.0	242.0	454.2	702.0	918.6	0.0	242.0	487.2	702.0	968.8	0.0	260.7
Pitch	53	61.5	70	81.5	93	108	123	143	163	189.5	216	251
Cents	487.2	744.7	968.8	32.2	260.7	519.6	744.7	1005.5	32.2	293.0	519.6	779.5

11,14,19 SEED

Pitch	11	12.5	14	16.5	19	22	25	29	33	38.5	44	51
Cents	0.0	221.3	417.5	702.0	946.2	0.0	221.3	478.3	702.0	968.8	0.0	255.6
Pitch	58	67.5	77	89.5	102	118.5	135	157	179	208	237	275.5
Cents	478.3	740.9	968.8	29.3	255.6	515.2	740.9	1002.2	29.3	289.2	515.2	775.8

11,15,18 SEED

Pitch	11	13	15	16.5	18	22	26	29.5	33	38.5	44	51.5
Cents	0.0	289.2	537.0	702.0	852.6	0.0	289.2	507.9	702.0	968.8	0.0	272.5
Pitch	59	68	77	90	103	119.5	136	158	180	209.5	239	277.5
Cents	507.9	753.6	968.8	38.9	272.5	529.7	753.6	1013.2	38.9	301.6	529.7	788.3

11,13,20 SEED

Pitch	11	12	13	16.5	20	22	24	28.5	33	38.5	44	50.5
Cents	0.0	150.6	289.2	702.0	1035.0	0.0	150.6	448.2	702.0	968.8	0.0	238.5
Pitch	57	67	77	89	101	117.5	134	156	178	206.5	235	273.5
Cents	448.2	728.0	968.8	19.6	238.5	500.5	728.0	991.2	19.6	276.7	500.5	763.2

7,8,14 SEED

Pitch	7	7.5	8	11	14	14.5	15	18.5	22	25.5	29	33
Cents	0.0	119.4	231.2	782.5	0.0	60.8	119.4	482.5	782.5	1038.1	60.8	284.4
Pitch	37	44	51	58.5	66	77	88	102.5	117	135.5	154	179.5
Cents	482.5	782.5	1038.1	75.6	284.4	551.3	782.5	1046.6	75.6	329.8	551.3	816.6

8,9,16 SEED

Pitch	8	8.5	9	12.5	16	16.5	17	21	25	29	33	37.5
Cents	0.0	105.0	203.9	772.6	0.0	53.3	105.0	470.8	772.6	1029.6	53.3	274.6
Pitch	42	50	58	66.5	75	87.5	100	116.5	133	154	175	204
Cents	470.8	772.6	1029.6	66.3	274.6	541.5	772.6	1037.0	66.3	320.1	541.5	806.9

9,10,18 SEED

Pitch	9	9.5	10	14	18	18.5	19	23.5	28	32.5	37	42
Cents	0.0	93.6	182.4	764.9	0.0	47.4	93.6	461.6	764.9	1022.9	47.4	266.9
Pitch	47	56	65	74.5	84	98	112	130.5	149	172.5	196	228.5
Cents	461.6	764.9	1022.9	59.1	266.9	533.7	764.9	1029.6	59.1	312.6	533.7	799.4

10,11,20 SEED

Pitch	10	10.5	11	15.5	20	20.5	21	26	31	36	41	46.5
Cents	0.0	84.5	165.0	758.7	0.0	42.7	84.5	454.2	758.7	1017.6	42.7	260.7
Pitch	52	62	72	82.5	93	108.5	124	144.5	165	191	217	253
Cents	454.2	758.7	1017.6	53.3	260.7	527.5	758.7	1023.6	53.3	306.6	527.5	793.3

MERU FIVE (a.k.a. Meta-Ptolemy)

3,4,5,6 SEED

Pitch	3	3.5	4	4.5	5	5.5	6	6.5	7	8	9	10
Cents	0.0	266.9	498.0	702.0	884.4	1049.4	0.0	138.6	266.9	498.0	702.0	884.4
Pitch	11	12	13	14.5	16	18	20	22	24	26.5	29	32.5
Cents	1049.4	0.0	138.6	327.6	498.0	702.0	884.4	1049.4	0.0	171.5	327.6	524.9
Pitch	36	40	44	48.5	53	59	65	72.5	80	88.5	97	107.5
Cents	702.0	884.4	1049.4	17.9	171.5	357.2	524.9	713.9	884.4	1059.2	17.9	195.9

4,6,7,8 SEED

Pitch	4	5	6	6.5	7	7.5	8	9	10	11.5	13	14
Cents	0.0	386.3	702.0	840.5	968.8	1088.3	0.0	203.9	386.3	628.3	840.5	968.8
Pitch	15	16.5	18	20.5	23	25.5	28	30.5	33	37	41	46
Cents	1088.3	53.3	203.9	429.1	628.3	806.9	968.8	1116.9	53.3	251.3	429.1	628.3
Pitch	51	56	61	67.5	74	83	92	102	112	123.5	135	150.5
Cents	806.9	968.8	1116.9	92.2	251.3	450.0	628.3	806.9	968.8	1138.0	92.2	280.3

5,6,7,8 SEED

Pitch	5	5.5	6	6.5	7	7.5	8	9.5	11	12	13	14
Cents	0.0	165.0	315.6	454.2	582.5	702.0	813.7	1111.2	165.0	315.6	454.2	582.5
Pitch	15	17	19	21.5	24	26	28	31	34	38.5	43	47.5
Cents	702.0	918.6	1111.2	125.2	315.6	454.2	582.5	758.7	918.6	1133.8	125.2	297.5
Pitch	52	57	62	69.5	77	86	95	104.5	114	126.5	139	155.5
Cents	454.2	613.2	758.7	956.4	1133.8	125.2	297.5	462.5	613.2	793.3	956.4	1150.6

6,7,10,11 SEED

Pitch	6	6.5	7	8.5	10	10.5	11	12	13	15	17	19
Cents	0.0	138.6	266.9	603.0	884.4	968.8	1049.4	0.0	138.6	386.3	603.0	795.6
Pitch	21	22.5	24	27	30	34	38	41.5	45	49.5	54	61
Cents	968.8	1088.3	0.0	203.9	386.3	603.0	795.6	948.1	1088.3	53.3	203.9	414.9
Pitch	68	75.5	83	91	99	110.5	122	136.5	151	166.5	182	201.5
Cents	603.0	784.1	948.1	1107.4	53.3	243.5	414.9	609.4	784.1	953.3	1107.4	83.6

7,8,10,11 SEED

Pitch	7	7.5	8	9	10	10.5	11	13	15	16.5	18	19.5
Cents	0.0	119.4	231.2	435.1	617.5	702.0	782.5	1071.7	119.4	284.4	435.1	573.7
Pitch	21	23.5	26	29.5	33	36	39	43	47	53	59	65.5
Cents	702.0	896.7	1071.7	90.3	284.4	435.1	573.7	742.7	896.7	1104.7	90.3	271.3
Pitch	72	79	86	96	106	118.5	131	144.5	158	175	192	214.5
Cents	435.1	595.7	742.7	933.1	1104.7	97.7	271.3	441.1	595.7	772.6	933.1	1125.0

7,8,10,12 SEED

Pitch	7	7.5	8	9	10	11	12	13.5	15	16.5	18	20
Cents	0.0	119.4	231.2	435.1	617.5	782.5	933.1	1137.0	119.4	284.4	435.1	617.5
Pitch	22	24.5	27	30	33	36.5	40	44.5	49	54.5	60	66.5
Cents	782.5	968.8	1137.0	119.4	284.4	459.0	617.5	802.1	968.8	1153.0	119.4	297.5
Pitch	73	81	89	99	109	121	133	147.5	162	180	198	220
Cents	459.0	639.0	802.1	986.4	1153.0	133.8	297.5	476.7	639.0	821.4	986.4	1168.8

9,11,13,15 SEED

Pitch	9	10	11	12	13	14	15	17.5	20	22	24	26
Cents	0.0	182.4	347.4	498.0	636.6	764.9	884.4	1151.2	182.4	347.4	498.0	636.6
Pitch	28	31.5	35	39.5	44	48	52	57.5	63	71	79	87.5
Cents	764.9	968.8	1151.2	160.6	347.4	498.0	636.6	810.7	968.8	1175.8	160.6	337.5
Pitch	96	105.5	115	128.5	142	158.5	175	193	211	234	257	287
Cents	498.0	661.4	810.7	1002.8	1175.8	166.1	337.5	507.0	661.4	840.5	1002.8	1194.0

9,11,14,16 SEED

Pitch	9	10	11	12.5	14	15	16	18	20	22.5	25	27.5
Cents	0.0	182.4	347.4	568.7	764.9	884.4	996.1	0.0	182.4	386.3	568.7	733.7
Pitch	30	33	36	40.5	45	50	55	60.5	66	73.5	81	90.5
Cents	884.4	1049.4	0.0	203.9	386.3	568.7	733.7	898.7	1049.4	35.7	203.9	395.9
Pitch	100	110.5	121	134	147	164	181	201	221	244.5	268	298
Cents	568.7	741.6	898.7	1075.4	35.7	225.2	395.9	577.4	741.6	916.5	1075.4	59.1

9,11,12,16 SEED

Pitch	9	10	11	11.5	12	14	16	18	20	21.5	23	25.5
Cents	0.0	182.4	347.4	424.4	498.0	764.9	996.1	0.0	182.4	307.6	424.4	603.0
Pitch	28	32	36	39.5	43	47	51	57.5	64	71.5	79	86.5
Cents	764.9	996.1	0.0	160.6	307.6	461.6	603.0	810.7	996.1	1187.9	160.6	317.6
Pitch	94	104.5	115	129	143	158	173	191	209	233.5	258	287
Cents	461.6	644.9	810.7	1009.6	1187.9	160.6	317.6	489.0	644.9	836.8	1009.6	1194.0

9,12,13,14 SEED

Pitch	9	10.5	12	12.5	13	13.5	14	17.5	21	23	25	26
Cents	0.0	266.9	498.0	568.7	636.6	702.0	764.9	1151.2	266.9	424.4	568.7	636.6
Pitch	27	31	35	40.5	46	49	52	57	62	71.5	81	89.5
Cents	702.0	941.1	1151.2	203.9	424.4	533.7	636.6	795.6	941.1	1187.9	203.9	376.7
Pitch	98	106	114	128.5	143	161	179	195.5	212	234.5	257	289.5
Cents	533.7	669.6	795.6	1002.8	1187.9	193.2	376.7	529.3	669.6	844.2	1002.8	9.0

10,12,13,14 SEED

Pitch	10	11	12	12.5	13	13.5	14	18	22	23.5	25	26
Cents	0.0	165.0	315.6	386.3	454.2	519.6	582.5	1017.6	165.0	279.2	386.3	454.2
Pitch	27	31.5	36	41.5	47	49.5	52	57.5	63	73	83	91
Cents	519.6	786.4	1017.6	63.7	279.2	368.9	454.2	628.3	786.4	1041.5	63.7	223.0
Pitch	99	107	115	130.5	146	164	182	198	214	237.5	261	294.5
Cents	368.9	503.4	628.3	847.2	1041.5	42.7	223.0	368.9	503.4	683.8	847.2	1056.2

8,13,14,18 SEED

Pitch	8	10.5	13	13.5	14	16	18	19.5	21	24	27	29.5
Cents	0.0	470.8	840.5	905.9	968.8	0.0	203.9	342.5	470.8	702.0	905.9	1059.2
Pitch	32	35.5	39	43.5	48	53.5	59	65	71	79	87	97
Cents	0.0	179.7	342.5	531.5	702.0	889.8	1059.2	26.8	179.7	364.5	531.5	719.9
Pitch	107	118.5	130	144	158	176	194	215.5	237	262.5	288	320
Cents	889.8	1066.5	26.8	203.9	364.5	551.3	719.9	901.9	1066.5	43.4	203.9	386.3

8,10,13,14 SEED

Pitch	8	9	10	11.5	13	13.5	14	16	18	20.5	23	25
Cents	0.0	203.9	386.3	628.3	840.5	905.9	968.8	0.0	203.9	429.1	628.3	772.6
Pitch	27	29.5	32	36.5	41	45.5	50	54.5	59	66	73	82
Cents	905.9	1059.2	0.0	227.8	429.1	609.4	772.6	921.8	1059.2	53.3	227.8	429.1
Pitch	91	100	109	120.5	132	148	164	182	200	220.5	241	268.5
Cents	609.4	772.6	921.8	1095.5	53.3	251.3	429.1	609.4	772.6	941.6	1095.5	82.5

7,9,12,13 SEED

Pitch	7	8	9	10.5	12	12.5	13	14.5	16	18.5	21	23
Cents	0.0	231.2	435.1	702.0	933.1	1003.8	1071.7	60.8	231.2	482.5	702.0	859.4
Pitch	25	27	29	33	37	41.5	46	50	54	60	66	74.5
Cents	1003.8	1137.0	60.8	284.4	482.5	681.2	859.4	1003.8	1137.0	119.4	284.4	494.2
Pitch	83	91.5	100	110	120	134.5	149	166	183	201.5	220	244.5
Cents	681.2	850.0	1003.8	1168.8	119.4	316.9	494.2	681.2	850.0	1016.7	1168.8	151.6

7,9,11,12 SEED

Pitch	7	8	9	10	11	11.5	12	14	16	18	20	21.5
Cents	0.0	231.2	435.1	617.5	782.5	859.4	933.1	0.0	231.2	435.1	617.5	742.7
Pitch	23	25.5	28	32	36	39.5	43	47	51	57.5	64	71.5
Cents	859.4	1038.1	0.0	231.2	435.1	595.7	742.7	896.7	1038.1	45.8	231.2	423.0
Pitch	79	86.5	94	104.5	115	129	143	158	173	191	209	233.5
Cents	595.7	752.7	896.7	1080.0	45.8	244.6	423.0	595.7	752.7	924.1	1080.0	71.9

10,13,15,19 SEED

Pitch	10	11.5	13	14	15	17	19	21	23	25.5	28	31
Cents	0.0	242.0	454.2	582.5	702.0	918.6	1111.2	84.5	242.0	420.6	582.5	758.7
Pitch	34	38	42	46.5	51	56.5	62	69	76	84.5	93	103
Cents	918.6	1111.2	84.5	260.7	420.6	597.9	758.7	943.9	1111.2	94.7	260.7	437.5
Pitch	113	125.5	138	153.5	169	187.5	206	228.5	251	279	307	341
Cents	597.9	779.5	943.9	1128.2	94.7	274.6	437.5	616.9	779.5	962.6	1128.2	110.0

10,13,16,17 SEED

Pitch	10	11.5	13	14.5	16	16.5	17	20	23	26	29	31
Cents	0.0	242.0	454.2	643.3	813.7	867.0	918.6	0.0	242.0	454.2	643.3	758.7
Pitch	33	36.5	40	46	52	57	62	67.5	73	82.5	92	103
Cents	867.0	1041.5	0.0	242.0	454.2	613.2	758.7	905.9	1041.5	53.3	242.0	437.5
Pitch	114	124.5	135	150	165	185.5	206	227.5	249	274.5	300	335.5
Cents	613.2	765.7	905.9	1088.3	53.3	256.0	437.5	609.4	765.7	934.5	1088.3	81.9

11,14,17,20 SEED

Pitch	11	12.5	14	15.5	17	18.5	20	22.5	25	28	31	34
Cents	0.0	221.3	417.5	593.7	753.6	900.0	1035.0	38.9	221.3	417.5	593.7	753.6
Pitch	37	41	45	50.5	56	62	68	75	82	91.5	101	112.5
Cents	900.0	1077.7	38.9	238.5	417.5	593.7	753.6	923.3	1077.7	67.5	238.5	425.2
Pitch	124	137	150	166.5	183	204	225	249.5	274	303.5	333	370.5
Cents	593.7	766.3	923.3	1103.9	67.5	255.6	425.2	604.2	766.3	943.3	1103.9	88.7

14,18,21,27 SEED

Pitch	14	16	18	19.5	21	24	27	29.5	32	35.5	39	43.5
Cents	0.0	231.2	435.1	573.7	702.0	933.1	1137.0	90.3	231.2	410.9	573.7	762.7
Pitch	48	53.5	59	65	71	79	87	97	107	118.5	130	144
Cents	933.1	1120.9	90.3	258.0	410.9	595.7	762.7	951.1	1120.9	97.7	258.0	435.1
Pitch	158	176	194	215.5	237	262.5	288	320	352	391.5	431	478
Cents	595.7	782.5	951.1	1133.0	97.7	274.6	435.1	617.5	782.5	966.6	1133.0	112.2

20,26,30,39 SEED

Pitch	20	23	26	28	30	34.5	39	42.5	46	51	56	62.5
Cents	0.0	242.0	454.2	582.5	702.0	943.9	1156.2	105.0	242.0	420.6	582.5	772.6
Pitch	69	77	85	93.5	102	113.5	125	139.5	154	170.5	187	207
Cents	943.9	1133.8	105.0	270.0	420.6	605.5	772.6	962.6	1133.8	110.0	270.0	445.9
Pitch	227	253	279	310	341	377.5	414	460	506	563	620	687.5
Cents	605.5	793.3	962.6	1145.0	110.0	286.1	445.9	628.3	793.3	978.1	1145.0	123.9

MERU SEVEN

7,9,11,13,16 SEED

Pitch	7	8	9	10	11	12.5	13	15.5	16	19	20	23.5
Cents	0.0	231.2	435.1	617.5	782.5	1003.8	1071.7	176.2	231.2	528.7	617.5	896.7
Pitch	25	29	31	36	38	44.5	47	55	58	68	72	84
Cents	1003.8	60.8	176.2	435.1	528.7	802.1	896.7	1168.8	60.8	336.1	435.1	702.0
Pitch	89	104	110	128.5	136	159	168	196.5	208	243	257	300.5
Cents	802.1	1071.7	1168.8	237.9	336.1	606.6	702.0	973.2	1071.7	140.9	237.9	508.6

8,10,12,15,18 SEED

Pitch	8	9	10	11.5	12	14	15	17.5	18	21.5	23	26.5
Cents	0.0	203.9	386.3	628.3	702.0	968.8	1088.3	155.1	203.9	511.5	628.3	873.5
Pitch	28	33	35	40.5	43	50.5	53	62	66	77	81	95
Cents	968.8	53.3	155.1	407.8	511.5	789.9	873.5	1145.0	53.3	320.1	407.8	683.8
Pitch	101	117.5	124	145.5	154	179.5	190	222.5	235	274.5	291	340
Cents	789.9	1051.8	1145.0	221.9	320.1	585.4	683.8	957.2	1051.8	120.8	221.9	491.3

9,11,14,17,21 SEED

Pitch	9	10.5	11	13	14	16	17	20	21	24.5	26	30.5
Cents	0.0	266.9	347.4	636.6	764.9	996.1	1101.0	182.4	266.9	533.7	636.6	913.0
Pitch	32	37.5	40	46.5	49	57.5	61	71	75	88	93	108.5
Cents	996.1	70.7	182.4	443.1	533.7	810.7	913.0	1175.8	70.7	347.4	443.1	710.0
Pitch	115	134.5	142	166	176	205.5	217	254	269	314	332	388.5
Cents	810.7	1081.8	1175.8	246.1	347.4	615.7	710.0	982.5	1081.8	149.6	246.1	518.2

10,12,15,18,22 SEED

Pitch	10	11	12	14	15	17	18	21.5	22	26	28	32.5
Cents	0.0	165.0	315.6	582.5	702.0	918.6	1017.6	125.2	165.0	454.2	582.5	840.5
Pitch	34	40	43	49.5	52	61.5	65	75.5	80	94	99	115.5
Cents	918.6	0.0	125.2	368.9	454.2	744.7	840.5	1099.8	0.0	279.2	368.9	635.8
Pitch	123	143.5	151	177	188	219	231	271	287	334.5	354	414.5
Cents	744.7	1011.6	1099.8	174.8	279.2	543.4	635.8	912.3	1011.6	76.7	174.8	448.0

11,15,18,21,26 SEED

Pitch	11	13	15	16	18	20.5	21	25	26	31	32	38
Cents	0.0	289.2	537.0	648.7	852.6	1077.7	1119.5	221.3	289.2	593.7	648.7	946.2
Pitch	41	47	50	58.5	62	72	76	89.5	94	110	117	136.5
Cents	1077.7	114.2	221.3	493.1	593.7	852.6	946.2	29.3	114.2	386.3	493.1	760.0
Pitch	144	168.5	179	208.5	220	258	273	318.5	337	394.5	417	487
Cents	852.6	1124.6	29.3	293.4	386.3	662.2	760.0	1026.9	1124.6	197.3	293.4	562.0

MERU NINE

5,6,7,8,9 SEED

Pitch	5	5.5	6	6.5	7	7.5	8	8.5	9	10	11	12
Cents	0.0	165.0	315.6	454.2	582.5	702.0	813.7	918.6	1017.6	0.0	165.0	315.6
Pitch	13	14	15	16	17	18.5	20	22	24	26	28	30
Cents	454.2	582.5	702.0	813.7	918.6	1065.0	0.0	165.0	315.6	454.2	582.5	702.0
Pitch	32	34.5	37	40.5	44	48	52	56	60	64.5	69	75
Cents	813.7	943.9	1065.0	21.5	165.0	315.6	454.2	582.5	702.0	827.2	943.9	1088.3

7,8,10,11,13 SEED

Pitch	7	7.5	8	9	10	10.5	11	12	13	14	15	16.5
Cents	0.0	119.4	231.2	435.1	617.5	702.0	782.5	933.1	1071.7	0.0	119.4	284.4
Pitch	18	19.5	21	22.5	24	26	28	30.5	33	36	39	42
Cents	435.1	573.7	702.0	821.4	933.1	1071.7	0.0	148.1	284.4	435.1	573.7	702.0
Pitch	45	48.5	52	56.5	61	66.5	72	78	84	90.5	97	105
Cents	821.4	951.1	1071.7	15.4	148.1	297.5	435.1	573.7	702.0	831.0	951.1	1088.3

7,9,10,12,13 SEED

Pitch	7	8	9	9.5	10	11	12	12.5	13	14.5	16	17.5
Cents	0.0	231.2	435.1	528.7	617.5	782.5	933.1	1003.8	1071.7	60.8	231.2	386.3
Pitch	19	20.5	22	23.5	25	27	29	32	35	38	41	44
Cents	528.7	660.2	782.5	896.7	1003.8	1137.0	60.8	231.2	386.3	528.7	660.2	782.5
Pitch	47	50.5	54	59	64	70	76	82	88	94.5	101	109.5
Cents	896.7	1021.0	1137.0	90.3	231.2	386.3	528.7	660.2	782.5	905.9	1021.0	1160.9

9,11,12,14,16 SEED

Pitch	9	10	11	11.5	12	13	14	15	16	18	20	21.5
Cents	0.0	182.4	347.4	424.4	498.0	636.6	764.9	884.4	996.1	0.0	182.4	307.6
Pitch	23	24.5	26	28	30	33	36	39.5	43	46	49	52.5
Cents	424.4	533.7	636.6	764.9	884.4	1049.4	0.0	160.6	307.6	424.4	533.7	653.2
Pitch	56	61	66	72.5	79	85.5	92	98.5	105	113.5	122	133.5
Cents	764.9	913.0	1049.4	12.0	160.6	297.5	424.4	542.6	653.2	787.9	913.0	1068.9

10,11,13,14,18 SEED

Pitch	10	10.5	11	12	13	13.5	14	16	18	19.5	21	22.5
Cents	0.0	84.5	165.0	315.6	454.2	519.6	582.5	813.7	1017.6	1156.2	84.5	203.9
Pitch	24	25.5	27	29.5	32	35.5	39	42	45	48	51	55
Cents	315.6	420.6	519.6	672.9	813.7	993.4	1156.2	84.5	203.9	315.6	420.6	551.3
Pitch	59	65	71	77.5	84	90	96	103	110	120	130	142.5
Cents	672.9	840.5	993.4	1145.0	84.5	203.9	315.6	437.5	551.3	702.0	840.5	999.5

8,10,12,13,14 SEED

Pitch	8	9	10	11	12	12.5	13	13.5	14	16	18	20
Cents	0.0	203.9	386.3	551.3	702.0	772.6	840.5	905.9	968.8	0.0	203.9	386.3
Pitch	22	23.5	25	26	27	29.5	32	36	40	43.5	47	49.5
Cents	551.3	665.5	772.6	840.5	905.9	1059.2	0.0	203.9	386.3	531.5	665.5	755.2
Pitch	52	55.5	59	65.5	72	79.5	87	93	99	105	111	121
Cents	840.5	953.3	1059.2	40.1	203.9	375.5	531.5	647.0	755.2	857.1	953.3	1102.6

12,14,16,18,21 SEED

Pitch	12	13	14	15	16	17	18	19.5	21	23.5	26	28
Cents	0.0	138.6	266.9	386.3	498.0	603.0	702.0	840.5	968.8	1163.6	138.6	266.9
Pitch	30	32	34	36.5	39	43	47	51.5	56	60	64	68.5
Cents	386.3	498.0	603.0	725.8	840.5	1009.6	1163.6	121.8	266.9	386.3	498.0	615.7
Pitch	73	79.5	86	94.5	103	111.5	120	128.5	137	148	159	174
Cents	725.8	873.5	1009.6	1172.7	121.8	259.1	386.3	504.8	615.7	749.4	873.5	1029.6

16,19,20,28,30 SEED

Pitch	16	17.5	19	19.5	20	24	28	29	30	32.5	35	37
Cents	0.0	155.1	297.5	342.5	386.3	702.0	968.8	1029.6	1088.3	26.8	155.1	251.3
Pitch	39	43.5	48	53	58	61.5	65	69.5	74	80.5	87	96.5
Cents	342.5	531.5	702.0	873.5	1029.6	1131.0	26.8	142.7	251.3	397.1	531.5	710.9
Pitch	106	114.5	123	131	139	150	161	177	193	211	229	245.5
Cents	873.5	1007.0	1131.0	40.1	142.7	274.6	397.1	561.1	710.9	865.3	1007.0	1127.5

18,21,25,27,33 SEED

Pitch	18	19.5	21	23	25	26	27	30	33	36	39	42.5
Cents	0.0	138.6	266.9	424.4	568.7	636.6	702.0	884.4	1049.4	0.0	138.6	287.4
Pitch	46	49	52	56	60	66	72	78.5	85	91.5	98	105
Cents	424.4	533.7	636.6	764.9	884.4	1049.4	0.0	149.6	287.4	414.9	533.7	653.2
Pitch	112	122	132	144.5	157	170	183	196.5	210	227	244	266.5
Cents	764.9	913.0	1049.4	6.0	149.6	287.4	414.9	538.2	653.2	787.9	913.0	1065.7

20,22,27,28,35 SEED

Pitch	20	21	22	24.5	27	27.5	28	31.5	35	38.5	42	45.5
Cents	0.0	84.5	165.0	351.3	519.6	551.3	582.5	786.4	968.8	1133.8	84.5	223.0
Pitch	49	52	55	59	63	70	77	84	91	97.5	104	111
Cents	351.3	454.2	551.3	672.9	786.4	968.8	1133.8	84.5	223.0	342.5	454.2	567.0
Pitch	118	129	140	154	168	181.5	195	208.5	222	240	258	283
Cents	672.9	827.2	968.8	1133.8	84.5	218.3	342.5	458.4	567.0	702.0	827.2	987.3