

works
as

software developer

Euler Lattice Lab

Start Frequency:

e.g., 440

 or Start Note:

select note ▾

Horizontal Ratio:

5:4

 Vertical Ratio:

3:2

Generate Lattice

Save Chord

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 Chord:

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Euler Lattice Lab - is a JavaScript app that allows users to create harmonies based on just intonation, providing an intuitive and interactive way to explore pure harmonic relationships.

<https://parhambehzad.com/JSprojects/>

Euler Lattice Lab

Start Frequency:

e.g., 440

 or Start Note:

A2

Horizontal Ratio:

5:4

 Vertical Ratio:

3:2

Generate Lattice

Hz	C6	E6	G#6	C7	E7	G#7	B7	D#8	G8	B8	D#9	G9	B9																																																																																													
34	1864.20 Hz	1330.26 Hz	1662.82 Hz	2078.52 Hz	2598.16 Hz	3247.70 Hz	4059.62 Hz	5074.52 Hz	6343.15 Hz	7928.94 Hz	9911.18 Hz	12388.97 Hz	15486.22 Hz	19800.00000	3869835264:400000000	967458816:80000000	241864704:16000000	60466176:3200000	15116544:640000	3779136:128000	944784:25600	236196:5120	59049:1024	295245:4096	1476225:16384	7381125:65536	36985625:262144																																																																															
46	F5	A5	C#6	F6	A6	C#7	E7	G#7	C8	E8	G#8	C9	E9	G9																																																																																												
66	709.47 Hz	886.84 Hz	1108.55 Hz	1385.68 Hz	1732.10 Hz	2165.13 Hz	2706.41 Hz	3383.82 Hz	4228.77 Hz	5285.96 Hz	6607.45 Hz	8259.32 Hz	10324.14 Hz	12908.18 Hz	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000	12899.180000000																																																																											
86	A#4	D5	F#5	A#5	D6	F#6	A6	C#7	F7	A7	C#8	F8	A8	C9	E9																																																																																											
106	472.98 Hz	591.22 Hz	739.03 Hz	923.79 Hz	1154.74 Hz	1443.42 Hz	1804.28 Hz	2255.34 Hz	2819.18 Hz	3523.97 Hz	4404.97 Hz	5586.21 Hz	6882.76 Hz	8603.46 Hz	10749.54 Hz	13442.90 Hz	16808.28 Hz	21120.21 Hz	26555.39 Hz	33519.23 Hz	42455.58 Hz	53755.58 Hz	67755.58 Hz	85755.58 Hz	108755.58 Hz	138755.58 Hz	176755.58 Hz	225755.58 Hz																																																																														
126	+25.146	+11.444	-0.296	-2.244	-13.976	-41.356	+44.976	+31.284	+17.596	+3.916	-9.786	-23.466	-37.156	+49.166																																																																																												
146	429981696:100000000	107495424:20000000	26873856:40000000	6718464:8000000	1679616:100000	419964:32000	104976:6400	26244:1280	6561:256	32885:1024	164025:4096	820125:16384	4100625:65536	20503125:262144	102515625:1048576	512578125:4194304																																																																																										
166	D#4	G4	B4	D#5	G5	B5	D6	F#6	A#6	D7	F#7	A#7	D8	F8	A8																																																																																											
186	315.32 Hz	394.15 Hz	492.69 Hz	615.86 Hz	769.82 Hz	962.28 Hz	1202.85 Hz	1503.56 Hz	1879.45 Hz	2349.32 Hz	2936.65 Hz	3678.81 Hz	4588.51 Hz	5735.64 Hz	7169.54 Hz	8961.93 Hz	11202.41 Hz	14008.28 Hz	17468.28 Hz	21808.28 Hz	27208.28 Hz	33908.28 Hz	42208.28 Hz	52508.28 Hz	65708.28 Hz	81708.28 Hz	100708.28 Hz	124708.28 Hz	154708.28 Hz	184708.28 Hz	214708.28 Hz	244708.28 Hz																																																																										
206	143327232:50000000	35831808:10000000	8957952:2000000	2239488:400000	559872:80000	139968:16000	34992:3200	8748:640	2187:128	10935:512	2675:2048	6675:16384	16675:4096	4100625:65536	28503125:262144	102515625:1048576	512578125:4194304	257578125:16384	101578125:65536	407578125:262144	162578125:1048576	657578125:4194304	262578125:16384	1062578125:65536	422578125:262144	172578125:1048576	722578125:4194304	277578125:16384	127578125:65536	177578125:262144	227578125:1048576	277578125:4194304																																																																										
226	C#3	F3	A3	C#4	F4	A4	C5	E5	G5	C6	E6	G#6	C7	E7	G7																																																																																											
246	140.14 Hz	175.18 Hz	218.97 Hz	273.72 Hz	342.14 Hz	427.68 Hz	534.60 Hz	668.25 Hz	835.31 Hz	1044.14 Hz	1305.18 Hz	1631.47 Hz	2039.34 Hz	2549.17 Hz	3186.46 Hz	3983.08 Hz	4978.85 Hz	6223.19 Hz	7748.28 Hz	9548.28 Hz	11648.28 Hz	14148.28 Hz	17048.28 Hz	20348.28 Hz	24148.28 Hz	28448.28 Hz	33348.28 Hz	39448.28 Hz	46748.28 Hz	55248.28 Hz	64948.28 Hz																																																																											
266	+19.286	+5.626	-8.116	-21.786	-35.496	-47.176	+37.156	+23.456	+9.776	-3.916	-17.606	-44.976	-77.646	+41.346	+27.666	+13.976	+0.296	-1.176	-2.246	-3.526	-4.726	-5.826	-6.826	-7.726	-8.526	-9.226	-9.826	-10.326	-10.726	-11.026	-11.226	-11.426																																																																										
286	15925248:12500000	3981312:5000000	995328:500000	248832:100000	62208:20000	15552:4000	3888:800	972:160	243:32	1215:128	6075:512	30375:2048	151875:8192	759375:32768	3796875:131072	18986375:524288	94921875:2097152	474609375:8388608	2373046875:33554432	11865234375:132686080	59326171875:132686080	296630859375:132686080	1483154296875:132686080	7415771474375:132686080	37078857371875:132686080	185394286859375:132686080	926971434296875:132686080	4634857171474375:132686080	23174285857371875:132686080	115871429286859375:132686080	579357146434296875:132686080	2896785731714296875:132686080	144839286585714296875:132686080																																																																									
306	F#2	A#2	D3	F#3	A3	C#4	F4	A4	C5	E5	G5	C6	E6	G#6	C7	E7																																																																																										
326	93.43 Hz	116.79 Hz	145.98 Hz	182.48 Hz	228.10 Hz	285.12 Hz	356.40 Hz	445.60 Hz	556.88 Hz	696.09 Hz	870.12 Hz	1087.65 Hz	1359.66 Hz	1699.45 Hz	2124.31 Hz	2655.39 Hz	3319.23 Hz	4145.58 Hz	5145.58 Hz	6375.58 Hz	7925.58 Hz	9925.58 Hz	12475.58 Hz	15675.58 Hz	19775.58 Hz	24875.58 Hz	31175.58 Hz	38875.58 Hz	47875.58 Hz	57875.58 Hz	68875.58 Hz	80875.58 Hz																																																																										
346	+17.286	+3.646	-10.036	-23.776	-37.426	-49.906	+35.186	+21.516	+7.816	-19.556	-5.886	-33.246	-66.926	+39.396	+25.716	+12.026	-1.676	-3.626	-5.626	-7.626	-9.626	-11.626	-13.626	-15.626	-17.626	-19.626	-21.626	-23.626	-25.626	-27.626	-29.626																																																																											
366	5308416:6250000	1327104:1250000	331776:250000	82944:50000	20736:10000	5184:2000	1296:400	324:80	81:16	405:64	2025:256	10125:1024	50625:4096	253125:16384	1265625:65536	6328125:262144	31640625:1048576	158203125:4194304	791015625:16776800	3955078125:67108400	19775390625:134216800	98876953125:268433600	494384765625:536867200	2471923828125:1073734400	12359619140625:2147468800	61798095703125:4294937600	308990478515625:8589875200	1544952392578125:17179750400	7724761962890625:34359500800	38623809814478125:68719001600	193119049072380625:137438003200	96559524536190625:274876006400	482797622680953125:549752012800	2413988113404765625:1099504025600	12069940567023828125:2199008051200	60349702835119140625:4398016102400	301748514175595703125:8796032204800	1508742570877978515625:17592064409600	7543712854389892578125:35184128819200	37718564271949462890625:70368257638400	188592821359747314453125:140736515276800	942964106798736721678125:281473030553600	4714820533993683619140625:5629460611270400	23574102669968418095703125:1124732122150400	1178705133498420904765625:2249464244224000	5893525334492104523828125:4498928488448000	29467626672460522619140625:8997856976896000	147338133362302617095703125:179977139737856000	73669066681151308736721678125:359954295479808000	36834533340575654389892578125:719908590959616000	184172666702878271949462890625:1439817191919232000	9208633335143913679747314453125:287963438383872000	46043166675719568398420904765625:575926876767840000	2302158333785978419418095703125:1151853753555712000	115107916668929420904765625:2303707507111424000	575539583344597104523828125:4607415014222848000	287769791666719568398420904765625:921483002844544000	143884895833378271949462890625:1842866017689088000	71942447916668929420904765625:3685732035378176000	3597122395833378271949462890625:7371464070756352000	179856119791666719568398420904765625:14742920141512704000	89928059895833378271949462890625:2948584028302540800	44964029947916668929420904765625:5897168056605184000	2248201497395833378271949462890625:11791536112010368000	1124100748791666719568398420904765625:23583070224020736000	562050374395833378271949462890625:47166140448041472000	281025187197916668929420904765625:94332280896082944000	14051258859895833378271949462890625:188664561792165888000	702562942994791666719568398420904765625:377329123584331776000	351281471497395833378271949462890625:754658247168663552000	1756407357487916668929420904765625:150931647337736704000	87820367874395833378271949462890625:301863294675473408000	4391018393719791666719568398420904765625:603726589350946816000	219550919687916668929420904765625:1207451178711693632000	10977545984395833378271949462890625:24149023774033872000	548877299219791666719568398420904765625:48298047548067744000	2744386496097916668929420904765625:96596095096135488000	1372193248048791666719568398420904765625:19319219019217088000	686096624024395833378271949462890625:38598038038434944000	34304831201219791666719568398420904765625:77196076076869888000	17152415600609791666719568398420904765625:154392152153779776000	85762078003048791666719568398420904765625:308784304307559552000	42881039001524395833378271949462890625:617568608615119104000	2144051950076219791666719568398420904765625:123513721723023808000	1072025975038148791666719568398420904765625:24702744344607744000	536012987519409791666719568398420904765625:49405486889215488000	2680064937597048791666719568398420904765625:98810973778430976000	1340032468798524395833378271949462890625:197621937556861952000	67001623439941219791666719568398420904765625:39524387511371904000	33500811719970609791666719568398420904765625:79048775022743936000	167504058599853048791666719568398420904765625:158097550045487872000	83752029299926524395833378271949462890625:316195100090975744000	4187601464996326219791666719568398420904765625:632390200181951488000	2093800732498162609791666719568398420904765625:126590100036397824000	10469003662490812548791666719568398420904765625:253180200072795648000	52345018312454062609791666719568398420904765625:50636040001459424000	261725091562070312548791666719568398420904765625:10127010000299856000	1308625457810351562548791666719568398420904765625:2025402000059904000	6543127289051762609791666719568398420904765625:40535040000119904000	32715636445257812548791666719568398420904765625:81070080000239808000	163578182226289062609791666719568398420904765625:16214016000047968000	817890911131445312548791666719568398420904765625:32428032000095936000	40894545556571914062548791666719568398420904765625:64856064000191872000	204472727782859570312548791666719568398420904765625:129712128000383744000	1022363638914297851562548791666719568398420904765625:259424256000767488000	51118181944714462890



<https://parhambehzad.com/JSprojects/harmonics/>

Overtones Lab

Fundamental Pitch: A2 Number of Harmonics: 16 Run

1° A2 0¢ 110.00 Hz Midi: 45	2° A3 0¢ 220.00 Hz Midi: 57	3° E4 +2¢ 330.00 Hz Midi: 64	4° A4 0¢ 440.00 Hz Midi: 69	5° C#5 -14¢ 550.00 Hz Midi: 73	6° E5 +2¢ 660.00 Hz Midi: 76	7° G5 -31¢ 770.00 Hz Midi: 79	8° A5 0¢ 880.00 Hz Midi: 81	9° B5 +4¢ 990.00 Hz Midi: 83	10° C#6 -14¢ 1100.00 Hz Midi: 85	11° D#6 -49¢ 1210.00 Hz Midi: 87	12° E6 +2¢ 1320.00 Hz Midi: 88	13° F6 +41¢ 1430.00 Hz Midi: 89
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Overtones Lab - is a JavaScript app that enables users to create harmonies based on natural overtone relationships, offering an intuitive way to explore the physics of sound and pure harmonic structures.