## Color Grading (Line)

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16.47

In Mandelbrot images colors are used to illustrate the number of iterations, needed to find out, that the complex number is not a member of the Mandelbrot set.

Grading by line means, that the given color palette is stretched to a larger number of entries. Please find a sample below with 4 colors stretched to 20 entries in total.

The first entry in the palette is the first original color, the last one is the last given original color. When the last entry in the palette is reached, the next iteration is marked with the first color again.

	1			
Color 1		Colors	Steps	Grading
Color 2 Color 3 Color 4	Grading 20	Color 1		0/6
		Color 1.1	i=0	1/6
		Color 1.2	i=1	2/6
stn*(nC - 1) + nC = gr   -nC 6 * (4-1) + 4 = 22		Color 1.3	i=2	3/6
		Color 1.4	i=3	4/6
		Color 1.5	i=4	5 /6
		Color 2		6/6
stn*(nC-1) = gr - nC   /(nC-1) stn = (gr-nC) / (nC - 1)		Color 2.1	i=5	1/6
		Color 2.2	i=6	2/6
(20 - 4) / (4 - 1) = 5,3333   (5 Rest 1)		Color 2.3	i=7	3/6
Step: 5, then assign the rest starting from the back as one step more: => 5,5,6 Grading: grn = stn + 1  At least: Grading >= (nC - 1) + nC Grading >= 2nC - 1		Color 2.4	i=8	4/6
		Color 2.5	i=9	5/6
		Color 3		6/6
		Color 3.1	i=10	1/7
		Color 3.2	i=11	2/7
		Color 3.3	i=12	3/7
		Color 3.4	i=13	4/7
		Color 3.5	i=14	5/7
		Color 3.6	i=15	6 / 7
		Color 4		7/7