Supplement 1 to Deb 20

** With the abbreviation

$$1\overbrace{77777777}^{8\text{ times}} = 17^{\underline{8}}$$

we obtain the „mirror quotients“

$$f(n) = \frac{71^{\underline{n}}}{17^{\underline{n}}}$$

$$\lim_{n\to\infty} f(n) = 4\ ;\ \lim_{n\to\infty} df(n) = 10$$

.

$$g(n) = \frac{160^{\underline{n}}}{17^{\underline{n}}}$$

$$\lim_{n\to\infty} g(n) = 9\ ;\ \lim_{n\to\infty} dg(n) = 10$$

$$df(n) = \frac{f(n+1) - f(n)}{f(n+2) - f(n+1)}$$

Discuss these results.
Find more!

** More scf with bodyguard structure

$$\sqrt{11} = [3;\ 3,\ 6,\ 3,\ 6,\ 3,\ 6,\ 3,\ 6,\ 3,\ 6,\ 3,\ \ ...]$$

$2\sqrt{11} = [6;\ 1,\ 1,\ 1,\ 2,\ 1,\ 1,\ 1,\ 12,\ 1,\ 1,\ 1$
$2,\ 1,\ 1,\ 1,\ 12,\ 1,\ 1,\ 1,\ 2,\ 1,\ 1,\ 1,\ 12,$
$1,\ 1,\ 1,\ 2,\ 1,\ 1,\ 1,\ 12,\ 1,\ 1,\ 1,\ 2,\ 1,\ 1,\ 1,\ \ldots]$

$3\sqrt{11} = [9;\ 1,\ 18,\ 1,\ 18,\ 1,\ 18,\ 1,\ 18,\ 1,$
$18,\ 1,\ 18,\ 1,\ 18,\ 1,\ 18,\ 1,\ \ldots]$

$4\sqrt{11} = [13;\ 3,\ 1,\ 3,\ 26,\ 3,\ 1,\ 3,\ 26,\ 3,\ 1,$
$3,\ 26,\ 3,\ 1,\ 3,\ 26,\ 3,\ 1,\ 3,\ 26,\ 3,\ 1,\ 3,\ 26,$
$3,\ 1,\ 3,\ 26,\ 3,\ 1,\ \ldots]$

$5\sqrt{11} = [16;\ 1,\ 1,\ 2,\ 1,\ 1,\ 32,\ 1,\ 1,\ 2,\ 1,\ 1,$
$32,\ 1,\ 1,\ 2,\ 1,\ 1,\ 32,\ 1,\ 1,\ 2,\ 1,\ 1,\ 32,\ 1,\ 1,$
$2,\ 1,\ 1,\ 32,\ 1,\ 1,\ 2,\ 1,\ 1,\ 32,\ 1,\ 1,\ \ldots]$

$6\sqrt{11} = [19;\ 1,\ 8,\ 1,\ 38,\ 1,\ 8,\ 1,\ 38,\ 1,\ 8,\ 1,$
$38,\ 1,\ 8,\ 1,\ 38,\ 1,\ 8,\ 1,\ 38,\ 1,\ 8,\ 1\ ,\ \ldots]$

$$7\sqrt{11} = [23;\ 4,\ 1,\ 1,\ 1,\ 1,\ 1,\ 4,\ 46,\ 4,$$
$$1,\ 1,\ 1,\ 1,\ 1,\ 4,\ 46,\ 4,\ 1,\ 1,\ 1,\ 1,\ 1,$$
$$4,\ 46,\ 4,\ 1,\ 1,\ 1,\ 1,\ 1,\ 4,\ 46,\ 4,$$
$$1,\ 1,\ 1,\ 1,\ 1,\ 4,\ 46,\ 4,\ 1,\ 1,\ 1,\ 1,\ 1,$$
$$4,\ 46,\ 4,\ 1,\ 1,\ 1,\ 1,\ 1,\ 4,\ 46,\ 4,$$
$$1,\ 1,\ 1,\ 1,\ 1,\ 4,\ 46,\ 4,\ 1,\ 1,\ 1,\ 1,\ 1,\ \ldots]$$

$$8\sqrt{11} - 8 = [18;\ 1,\ 1,\ 7,\ 13,\ 7,\ 1,\ 1,\ 52,\ 1,\ 1,$$
$$7,\ 13,\ 7,\ 1,\ 1,\ 52,\ 1,\ 1,\ 7,\ 13,\ 7,\ 1,\ 1,\ \ldots]$$

$$\frac{5}{7}\sqrt{11} = \ [2;\ 2,\ 1,\ 2,\ 2,\ 4,\ 4,\ 1,\ 1,\ 20,\ 1,\ 1,$$
$$4,\ 4,\ 2,\ 2,\ 1,\ 2,\ 4,\ 2,\ 1,\ 2,\ 2,\ 4,\ 4,\ 1,\ 1,\ 20,$$
$$1,\ 1,\ 4,\ 4,\ 2,\ 2,\ 1,\ 2,\ 4,\ 2,\ 1,\ 2,\ 2,\ 4,\ 4,\ 1,\ 1,$$
$$20,\ 1,\ 1,\ 4,\ 4,\ 2,\ 2,\ 1,\ 2,\ 4,\ 2,\ 1,\ 2,\ 2,\ 4,\ 4,$$
$$1,\ 1,\ 20,\ 1,\ 1,\ 4,\ 4,\ 2,\ 2,\ 1,\ 2,\ 4,\ 2,\ 1,\ 2,\ 2,$$
$$4,\ 4,\ 1,\ 1,\ 20,\ \ldots]$$

$$\frac{1}{4}(1+\sqrt{21}) = [1;2,1,1,8,1,1,2,1,1,8,1,1,2,1,\ldots]$$

$$7\sqrt{23} = [33;\ 1,\ 1,\ 3,\ 33,\ 3,\ 1,\ 1,\ 66,\ 1,\ 1,\ 3,\ 33,\ 3,\ 1,\ 1,\ 66,\ 1,\ 1,\ 3,\ 33,\ 3,\ 1,\ 1,\ 66,\ 1,\ 1,\ 3,\ 33,\ 3,\ 1,\ 1,\ 66,\ 1,\ 1,\ 3,\ 33,\ 3,\ 1,\ 1,\ 66,\ \ ...]$$

$$\frac{1}{4}(\sqrt{65} - 5) = [0;\ 1,\ 3,\ 3,\ 1,\ 3,\ 3,\ 1,\ 3,\ 3,\ 1,\ 3,\ 3,\ 1,\ 3,\ 3,\ 1,\ 3,\ 3,\ ...]$$

$$\frac{1}{8}(\sqrt{13*29} - 13) = [0;\ 1,\ 4,\ 19,\ 4,\ 1,\ 4,\ 19,\ 4,\ 1,\ 4,\ 19,\ 4,\ 1,\ 4,\ 19,\ 4,\ 1,\ 4,\ 19,\ 4,\ 1,\ 4,\ 19,\ 4,\ 1,\ 4,\ 19,\ 4,\ 1,\ 4,\ 19,\ 4,\ ...]$$

$$\frac{1}{4}(\sqrt{105} - 7) = \quad [0;\ 1,\ 4,\ 3,\ 4,\ 1,\ 4,\ 3,\ 4,\ 1,\ 4,\ 3,\ 4,\ 1,\ 4,\ 3,\ 4,\ 1,\ 4,\ 3,\ 4,\ ...]$$

$$\frac{1}{2}(\sqrt{21} - 3) = \quad [0;\ 1,\ 3,\ 1,\ 3,\ 1,\ 3,\ 1,\ 3,\ 1,\ 3,\ 1,\ 3,\ 1,\ 3,\ 1,\ 3,\ 1,\ 3,\ ...]$$

$$2(\sqrt{2}-1) = \quad [0;\ 1,\ 4,\ 1,\ 4,\ 1,\ 4,\ 1,\ 4,$$
$$1,\ 4,\ 1,\ 4,\ 1,\ 4,\ 1,\ 4,\ 1,\ 4,\ \ldots]$$

$$\frac{1}{2}(3\sqrt{5}-5) = \quad [0;\ 1,\ 5,\ 1,\ 5,\ 1,\ 5,\ 1,\ 5,$$
$$1,\ 5,\ 1,\ 5,\ 1,\ 5,\ 1,\ 5,\ 1,\ 5,\ \ldots]$$