12.01.14

Aufgabe 4

$n \in \mathbb{N}^*$ bzw. $n \in \mathbb{Z}^+$

abbrechender Dezimalbruch

$\Rightarrow$ Nenner m muss 2 und/oder 5 als Primfaktoren haben

$\Rightarrow$ $\frac{z}{m} = 0{,}d_1 d_2 \ldots d_k \quad | \cdot 10^k$

$$\frac{z \cdot 10^k}{m} = d_1 d_2 \ldots d_k$$

$$\frac{z \cdot 2^k \cdot 5^k}{m} = d_1 d_2 \ldots d_k$$

$m = 2^x \cdot 5^y = 1$, wenn Dezimalbruch abbricht.

① $\frac{z}{m} \Rightarrow m = 1$

② $\frac{z}{m} = \frac{1}{\frac{m}{z}} \Rightarrow \frac{m}{z} = 1$

$m = z$

$$\frac{4n+1}{n(2n-1)}$$

①

$$(4n+1) : (2n^2 - n) = \frac{2}{n} + 3$$
$$-(4n-2)$$
$$3$$

$m = n = 1$

②

$$\frac{4n+1}{n(2n-1)} = \frac{1}{\frac{4n+1}{n(2n-1)}}$$

$$
\begin{array}{l}
(2n^2 - n) : (4n+1) = \frac{n}{2} - \frac{3}{8} + \frac{\frac{3}{8}}{4n+1} \\
\underline{-(2n^2 + \frac{n}{2})} \\
\quad -\frac{3}{2}n \\
\quad \underline{-(-\frac{3}{2}n - \frac{3}{8})} \\
\qquad \frac{3}{8}
\end{array}
$$

$m = \frac{n}{2} = 1$

$n = 2$

↳

$n = 1 \qquad \frac{4(1)+1}{1(2(1)-1)} = \frac{4+1}{2-1} = \frac{5}{1} = 5$

$n = 2 \qquad \frac{4(2)+1}{2(2(2)-1)} = \frac{8+1}{2(3)} = \frac{9}{6} = \frac{3}{2} = 1{,}5$