1.-

a) $2{,}75=\frac{275}{100}=\frac{11}{4}$

b) $\left.\begin{matrix} x=7{,}333... \\ 10x=73{,}333... \end{matrix}\right\}$ restando ambas expresiones: $10x-x=73{,}33...-7{,}33...$

$$9x=73-7=66 \rightarrow x=\frac{66}{9}=\frac{22}{3}$$

c) $x=3{,}12525... \left\{\begin{matrix} 10x=31{,}2525... \\ 1000x=3125{,}2525... \end{matrix}\right\} 1000x-10x=3125-31$

$$x=\frac{3094}{990}=\frac{1547}{495}$$

d) $x=1{,}1999... \left\{\begin{matrix} 10x=11{,}999... \\ 100x=119{,}999... \end{matrix}\right\} 100x-10x=119-11 \qquad x=\frac{108}{90}=1{,}2$

NOTA: el período 9 se aproxima por exceso siempre
Así, $1{,}1\widehat{9}=1{,}2$; $3{,}\widehat{9}=4$, etcétera.

2.-

a) $4{,}2=\frac{42}{10}=\frac{21}{5}$ b) $-6{,}5=-\frac{65}{10}=-\frac{13}{2}$

c) $2{,}333...=\frac{21}{9}=\frac{7}{3}$ d) $7{,}12323...=\frac{7123-71}{990}=\frac{7052}{990}=\frac{3526}{495}$

3.-

a) $0{,}025=\frac{25}{1000}=\frac{1}{40}$ b) $-12{,}5=-\frac{125}{10}=-\frac{25}{2}$

c) $12{,}1818...=\frac{1218-12}{99}=\frac{1206}{99}=\frac{134}{11}$ d) $0{,}24555...=\frac{245-24}{900}=\frac{221}{900}$

4.-

a) $\frac{3}{4}=0{,}75$ b) $\frac{1}{1000}=0{,}001$

c) $\frac{6}{23}$ = 0,260869565217391304347826086956521739130434 78…

(Período = 260869565217391304347826)

d) $\frac{5}{3}=1{,}\widehat{6}$ e) $\frac{121}{90}=1{,}3\widehat{4}$

5.-

a) $\frac{5}{15}=0,\widehat{3}$ b) $\frac{9}{110}=0,08181...$ c) $\frac{6}{24}=0'25$

d) $\frac{50}{17}$ = 2,941176470588235294117647058823 52… e) $\frac{144}{48}=3$

(Período = 9411764705882352)

6.-

a) $3,\widehat{9}$ = 4 (ver nota en ejercicio 1 – d) b) $3,9\widehat{9}$ = 4

c) $6,12\widehat{3}=\frac{6123-612}{900}=\frac{1837}{300}$ d) $6,123\widehat{3}=\frac{1837}{300}$ e) $6,123=\frac{6123}{1000}$

7.-

a) $2 \cdot 5 – 3 [4 + 7 – 2 (1 + 3) – 6 (2 + 1) + 4] =$
$= 2 \cdot 5 – 3 \cdot (4 + 7 – 2 \cdot 4 – 6 \cdot 3 + 4) = 10 – 3 \cdot (4 + 7 – 8 – 18 + 4) =$
$= 10 – 3 \cdot (– 11) = 10 + 33 = 43$

b) $\frac{2}{3}-\frac{1}{4}-\left(\frac{1}{3}+\frac{1}{2}-1\right)+2=\frac{2}{3}-\frac{1}{4}-\left(-\frac{1}{6}\right)+2=\frac{31}{12}$

c) $\frac{-5}{2}+\frac{3}{4}\cdot\left(\frac{2}{3}-1\right)+2-3\cdot\left(\frac{2}{5}-\frac{1}{4}+2\right)-\frac{2}{3}=-\frac{173}{30}$

d) $\frac{4}{3}\cdot\left(1-\frac{1}{4}\right)\cdot\left(3-\frac{2}{3}\right)\cdot\left(1-\frac{1}{7}\right)\cdot\left(\frac{1}{6}-1\right)=-\frac{5}{3}$

8.-

a) $2 – 6 [5 + 2 (1 + 3) – 1] – 10 + 3 [1 + 5 (2 – 3)] = – 92$

b) $\frac{-1}{2}+2\left(-\frac{1}{3}+\frac{1}{2}\right)-6\left(\frac{1}{4}-\frac{1}{2}+1\right)-5=-\frac{29}{3}$

c) $\left(\frac{1}{4}+\frac{3}{2}\cdot\frac{4}{9}\right):\left(\frac{3}{2}\cdot\frac{2}{9}-\frac{5}{6}\right)=-\frac{11}{6}$

d) $\left(1-\frac{1}{4}\right)\cdot\left(2-\frac{1}{3}\right)\cdot\left(\frac{1}{5}-1\right)\cdot\left(\frac{1}{2}-2\right)=\frac{3}{2}$

9.-

a) $\frac{4}{5}:\left[\frac{3}{4}\cdot\left(\frac{1}{6}+\frac{2}{3}\right)-\frac{3}{8}\right]-3\cdot\left[\frac{1}{6}:\left(1-\frac{2}{5}\right)\right]=\frac{213}{90}$

b) $\frac{1}{3}+\frac{1}{4}:\left(\frac{1}{3}-\frac{1}{2}+\frac{3}{4}\right)-\frac{1}{2}=\frac{11}{42}$