Rewrite each infinitely repeating decimal as a rational number (fraction).

1) \(0.72\overline{8}\)

2) \(0.5\overline{6}\)

3) \(1.9\overline{4}\)

4) \(0.7\overline{5}\)

5) \(9.305\overline{3}\)

6) \(0.30\overline{9}\)

7) \(47.7\overline{5}\)

8) \(54.1\overline{9}\)

9) \(1.72\overline{8}\)

10) \(5.9\overline{8}\)

Answers:

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8. 

9. 

10. 

Rewrite each infinitely repeating decimal as a rational number (fraction).

1) \(0.728\overline{10}\)
\[
f = 0.728\overline{10}
\]
\[
\begin{align*}
100,000f & = 72810.10 \\
- 1,000f & = 00728.10 \\
99000f & = 72082
\end{align*}
\]
\[
f = \frac{72082}{99000}
\]

2) \(0.5\overline{66}\)
\[
f = 0.5\overline{66}
\]
\[
\begin{align*}
1,000f & = 566.66 \\
- 10f & = 005.66 \\
990f & = 561
\end{align*}
\]
\[
f = \frac{561}{990}
\]

3) \(1.9\overline{4}\)
\[
f = 1.9\overline{4}
\]
\[
\begin{align*}
100f & = 194.4 \\
- 10f & = 019.4 \\
90f & = 175
\end{align*}
\]
\[
f = \frac{175}{90}
\]

4) \(0.75\overline{1}\)
\[
f = 0.75\overline{1}
\]
\[
\begin{align*}
1,000f & = 751.1 \overline{1} \\
- 100f & = 075.1 \overline{1} \\
900f & = 676
\end{align*}
\]
\[
f = \frac{676}{900}
\]

5) \(9.3053\overline{4}\)
\[
f = 9.3053\overline{4}
\]
\[
\begin{align*}
100,000f & = 930534.3\overline{4} \\
- 1,000f & = 009305.3\overline{4} \\
99000f & = 921229
\end{align*}
\]
\[
f = \frac{921229}{99000}
\]

6) \(0.3094\overline{3}\)
\[
f = 0.3094\overline{3}
\]
\[
\begin{align*}
10,000f & = 3094.3 \overline{3} \\
- 1,000f & = 0309.4 \overline{3} \\
9000f & = 2785
\end{align*}
\]
\[
f = \frac{2785}{9000}
\]

7) \(47.7\overline{5}\)
\[
f = 47.7\overline{5}
\]
\[
\begin{align*}
100f & = 4775.5 \\
- 10f & = 0477.5 \\
90f & = 4298
\end{align*}
\]
\[
f = \frac{4298}{90}
\]

8) \(54.1\overline{91}\)
\[
f = 54.1\overline{91}
\]
\[
\begin{align*}
1,000f & = 54191.91 \\
- 10f & = 00541.91 \\
990f & = 53650
\end{align*}
\]
\[
f = \frac{53650}{990}
\]

9) \(1.728\overline{6}\)
\[
f = 1.728\overline{6}
\]
\[
\begin{align*}
10,000f & = 17286.\overline{6} \\
- 1,000f & = 01728.\overline{6} \\
9000f & = 15558
\end{align*}
\]
\[
f = \frac{15558}{9000}
\]

10) \(5.9\overline{86}\)
\[
f = 5.9\overline{86}
\]
\[
\begin{align*}
1,000f & = 5986.8\overline{6} \\
- 10f & = 00598.8\overline{6} \\
990f & = 5927
\end{align*}
\]
\[
f = \frac{5927}{990}
\]