

Convert $0.5\bar{4}$ into a fraction

① Let $x = 0.5\bar{4}$

② multiply both sides by 100

$$100x = 54.\bar{4}$$

③ Subtract ① from ②

$$\begin{array}{r} 100x = 54.\bar{4} \\ - x = 0.5\bar{4} \\ \hline \end{array}$$

$$99x = 53.9$$

but still a decimal!

④ multiply both sides by 10, solve for x .

$$\frac{990x}{990} = \frac{539}{990}$$

$$x = \frac{539}{990} = \frac{11 \cdot 49}{11 \cdot 90} = \boxed{\frac{49}{90}}$$

Confirm by

$$990 \overline{) 539}$$