

Converting Recurring Decimals to Fractions

We use an algebraic process to convert a recurring decimal to a fraction.



Example Write $0.\dot{2}\dot{6}$ as a fraction in its simplest form.

1 Write an equation with x equal to the recurring decimal:

$$x = 0.\dot{2}\dot{6}$$

2 Multiply by a power of 10 so that the recurring parts align:

$\times 100$ $\times 100$

$$100x = 26.\dot{2}\dot{6}$$

3 Subtract so that all of the recurring parts cancel out :

$$\begin{array}{r} 100x = 26.\dot{2}\dot{6} \\ x = 0.\dot{2}\dot{6} \\ \hline 99x = 26.00\dots \end{array}$$

4 Rearrange to make x the subject: $99x = 26$

$\div 99$ $\div 99$

$$x = \frac{26}{99}$$

Everything after the decimal point becomes 0.