

Pythagoras investigation — Tilted Squares (nrich)

Starter

1. Express $0.5\dot{1}$ as a fraction in its lowest terms.

Working: $0.5\dot{1} = 0.5111\dots$
 Let $x = 0.5111\dots$

Multiply by 10 to get recurring part next to decimal point:

$$10x = 5.111\dots$$

Multiply $x = 0.5111\dots$ by 100: $100x = 51.111\dots$

Subtracting: $100x - 10x = 51.111\dots - 5.111\dots$

$$90x = 46$$

$$x = \frac{46}{90} = \frac{23}{45}$$

2. **(Review of last lesson)**

Without using a calculator, add together $\frac{8}{15}$ and $1.14\dot{6}$. Give your answer as a mixed number in its simplest form.

Working: $1.14\dot{6} = 1.14666\dots$ needs to be expressed as a fraction first.
 Let $x = 1.14666\dots$

Multiply by 100: $100x = 114.666\dots$

Multiply $x = 1.14666\dots$ by 1000: $1000x = 1146.666\dots$

Subtracting: $1000x - 100x = 1146.666\dots - 114.666\dots$

$$900x = 1032$$

$$x = \frac{1032}{900} = \frac{86}{75}$$

$$\frac{8}{15} + \frac{86}{75} = \frac{40}{75} + \frac{86}{75} = \frac{126}{75} = 1\frac{51}{75} = 1\frac{17}{25}$$

Exercise

Do the [Tilted Squares](#) investigation or CIMT 8A p47 Ex 3.1

[Solutions to Starter and E.g.s](#)