

HOW WELL DO YOU KNOW YOUR FRACTIONS?

Each of these questions is a genuine mistake made by students over the years. How well do you know your fractions and can you fix the mistake?

Find the mistake and redo the solutions.

(1) Simplify  $\frac{2+6y}{2}$       Solution:  $\frac{2+6y}{2} = 1+6y$

(2) Simplify  $1\frac{1}{\frac{2}{\frac{3}{4}}}$       Solution:  $\frac{\frac{3}{2}}{\frac{3}{4}} = \frac{1}{8}$

(3) Simplify  $\frac{n}{2} + 500$ .      Solution:  $n+1000$

(4) Solve for  $n$ :  $\frac{n}{2} + 1 = 2$ .      Solution:  $2n+2=4$   
 $2n=2$   
 $\therefore n=1$

(5) Solve for  $n$ :  $5050 = \frac{n}{2} \times 101$       Solution:  $10100 = 202n$

$$\therefore n = \frac{10100}{202} = 50$$

Harder Questions:

(6) Simplify  $\frac{1 - \frac{1}{\sqrt{3}}}{1 + \frac{1}{\sqrt{3}}}$

$$\boxed{2 - \sqrt{3}}$$

(7) (a) Find the exact value of  $r$ , if  $r = \frac{2}{\sqrt{2} + 1}$

(b) Hence, evaluate  $\frac{2}{1-r}$

$$\boxed{2 + \sqrt{2}}$$

(8) If  $r = \frac{1}{w}$  and  $S = \frac{1}{1-w}$ , find the exact value of  $a$  if  $S = \frac{a}{1-r}$

$$\boxed{\frac{1}{w}}$$