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: $\frac{\cancel{2}+6y}{\cancel{2}}=1+6y$

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

(3) Write as a single fraction: $\frac{n}{2}+500$. 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 $\dfrac{1-\dfrac{1}{\sqrt{3}}}{1+\dfrac{1}{\sqrt{3}}}$

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

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

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

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

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

$\boxed{-\dfrac{1}{w}}$