

Solutions by Dev Anoop

Person/s	B	A	A+B
Time taken to finish work (in days)	$2x$	$2x + \frac{50}{100} \times 2x$ $= 3x$	18
work done in 1 day	$\frac{1}{2x}$	$\frac{1}{3x}$	$\frac{1}{18}$

$$\frac{1}{2x} + \frac{1}{3x} = \frac{1}{18}$$

$$\Rightarrow \frac{3+2}{6x} = \frac{1}{18}$$

$$\Rightarrow \frac{5}{6x} = \frac{1}{18}$$

$$\Rightarrow \frac{1}{x} = \frac{1}{18} \times \frac{6}{5}$$

$$\Rightarrow \frac{1}{x} = \frac{1}{15}$$

$$\Rightarrow x = 15$$

Time taken by B to finish work = 30 days

Person/s	B	A	A+B
Time taken to finish work (in days)	$\frac{1}{x}$	$\frac{1}{2x}$	12
work done in 1 day	x	$2x$	$\frac{1}{12}$

$$x + 2x = \frac{1}{12}$$

$$\Rightarrow 3x = \frac{1}{12}$$

$$\Rightarrow x = \frac{1}{36}$$

\therefore Time taken by B to finish work
 $= \frac{1}{x}$
 $= 36$ days