

February 18<sup>th</sup>

The ratio of William's age to Harry's age is 2:5. Five years ago the ratio was 1:3.

In how many years time will the ratio be 4:9?



Five years ago

William was  $x$  , Harry was  $3x$

Now

William is  $x + 5$ , Harry is  $3x + 5$

But these are in the ratio 2:5

So  $2(3x + 5) = 5(x + 5)$

Hence  $6x + 10 = 5x + 25$

Therefore  $x = 15$

So currently William is 20 and Harry is 50

We now need  $20+y$  and  $50+y$  to be in the ratio 4:9

So  $9(20 + y) = 4(50 + y)$

Hence  $180 + 9y = 200 + 4y$

Therefore  $y = 4$

So in **4 years' time**, (William is 24 and Harry is 54  $24:54 = 4:9$ )

