

Q - 31. 'A' takes thrice the time that 'B' takes to complete some work but earns one-third of what 'B' earns for doing the work. The ratio of their hourly wages (A : B) will be . . . ?


 1] 1 : 3

 2] 1 : 1

 3] 1 : 9

 4] 27 : 1

Soln. : Let 'B' take 'h' hours to complete the work

∴ 'A' takes 3h hours

Let 'B' earn '3x' for doing the work

∴ 'A' earns 'x' for doing the work

$$\therefore \text{'A's' hourly rate} = \frac{\text{Total Earnings}}{\text{Total Hours}} = \frac{x}{3h}$$

Similarly,

'B's' hourly rate = $3x/h$

∴ Ratio of 'A's' hourly rate to 'B's' hourly rate = $x/3h : 3x/h$

= $1/3 : 3$

= $1 : 9$. Hence [3]

Q-32. If one child consumes $c/8$ calories every 'h' hours, how many calories will 7 children consume in 12 hours?

 1] $\frac{6c}{7h}$
 2] $\frac{56}{ch}$
 3] $\frac{18hc}{7}$
 4] $\frac{21c}{2h}$

Soln. : It is advisable to solve such problems by breaking them into small steps, incorporating one piece of information at a time.

Step 1 : 1 child consumes $c/8$ in 'h' hours

∴ In 1 hour, 1 child consumes $c/8 \times 1/h = c/8h$

Step 2 : In 12 hours, 1 child consumes $c/8h \times 12 = 3c/2h$

Step 3 : In 12 hours, 7 children consume $3c/2h \times 7 = 21c/2h$. Hence [4]

Q-33. There are 4 toy-manufacturing machines. The fastest of these machines makes 'T' toys in 8 hours, while the slowest of the lot makes 'T' toys in 9 hours. If each of the machine makes 'T' toys, the average time taken by the machines cannot equal which of the following ?


 1] 8.3

 2] 8.1

 3] 8.46

 4] 8.35

Soln. : Fastest machine makes 'T' toys in 8 hours.

Slowest machine makes 'T' toys in 9 hours

We do not know how much time the other 2 machines take. There are 2 extreme possibilities. The other 2 machines can be neither faster than the fastest machine nor can they be slower than the slowest machine.

∴ If the other 2 are as fast as the fastest machine,

Total time taken to make 'T' toys each = $8 + 8 + 8 + 9$ hours = 33 hours

∴ Average Time = $33 \times 1/4 = 8.25$ hours

If the other 2 are as slow as the slowest machine,

Total time taken to make 'T' toys each = $8 + 9 + 9 + 9 = 35$ hours

∴ Average time = $35/4 = 8.75$ hours

∴ Average has to range between 8.25 and 8.75.

Option 2, 8.1 hours, is not possible.

Hence [2]