

Time and Work Ex 11.1 Q5

Answer:

Time taken by Sita to do the work = 9 hours Time taken by Mita to do the work = 6 hours Time taken by Rita to do the work = 12 hours Now,

Work done by Sita = $\frac{1}{9}$

Work done by Mita = $\frac{1}{6}$

Work done by Rita = $\frac{1}{12}$

... Work done by them together $=\frac{1}{9} + \frac{1}{6} + \frac{1}{12}$ $=\frac{4+6+3}{36} = \frac{13}{36}$

Thus, together they can do the work in $\frac{36}{13}$ hours.

Time and Work Ex 11.1 Q6

Answer:

Time taken by A to do the work =20 hours Time taken by B to do the work =24 hours Time taken by (A+B+C) to do the work =8 hours Now,

Work done by $A = \frac{1}{20}$

Work done by $B = \frac{1}{24}$

Work done by $(A+B+C)=\frac{1}{8}$

$$\therefore \text{ Work done by } C = \frac{1}{8} - \left(\frac{1}{20} + \frac{1}{24}\right)$$

$$= \frac{1}{8} - \left(\frac{6}{120} + \frac{5}{120}\right) = \frac{1}{8} - \left(\frac{11}{120}\right)$$

$$= \frac{15 - 11}{120} = \frac{4}{120} = \frac{1}{30}$$

Thus, C can do the work in 30 hours.

Time and Work Ex 11.1 Q7

Answer:

Time taken by (A + B) to do the work = 18 days Time taken by (B + C) to do the work = 24 days Time taken by (A + C) to do the work = 36 days Now,

Work done by $(A + B) = \frac{1}{18}$

Work done by $(B+C) = \frac{1}{24}$

Work done by $(A+C)=\frac{1}{36}$

.. Work done together =
$$(A + B) + (B + C) + (A + C)$$

= $\frac{1}{18} + \frac{1}{24} + \frac{1}{36}$
= $\frac{4+3+2}{72} = \frac{9}{72}$

- \therefore Work done together $= 2(A + B + C) = \frac{1}{8}$
- \therefore Work done by $(A+B+C)=\frac{1}{16}$

Thus, together they can finish the work in 16 days.

Time and Work Ex 11.1 Q8

Answer:

Time taken by (A + B) to do the work = 12 days Time taken by (B + C) to do the work = 15 days Time taken by (A + C) to do the work = 20 days Now,

Work done by $(A + B) = \frac{1}{12}$

Work done by $(B+C)=\frac{1}{15}$

Work done by $(A + C) = \frac{1}{20}$

... Work done together = (A + B) + (B + C) + (A + C)= $\frac{1}{12} + \frac{1}{15} + \frac{1}{20}$ = $\frac{5+4+3}{60} = \frac{12}{60}$ = $\frac{1}{5}$

- \therefore Work done together = $2(A+B+C) = \frac{1}{5}$
- \therefore Work done by $(A+B+C)=\frac{1}{10}$
- ... Work done by A alone = (A + B + C) (B + C)= $\frac{1}{10} - \frac{1}{15} = \frac{3-2}{30} = \frac{1}{30}$

Thus, A alone can do the work in 30 days.

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