



### Exercise 13B

Q6.

**Answer :**

(c) Rs. 1800

Since the wage distribution will follow the work distribution ratio, we have:

$$\text{Work done by A in 1 day} = \frac{1}{10}$$

$$\text{Work done by B in 1 day} = \frac{1}{15}$$

$$\text{Net work done by (A+B) in 1 day} = \frac{1}{10} + \frac{1}{15} = \frac{5}{30} = \frac{1}{6}$$

i.e., (A+B) will take 6 days to complete the work.

$$\text{A's share of work in a day} = \frac{1}{10} \div \frac{1}{6} = \frac{1}{10} \times \frac{6}{1} = \frac{6}{10} = \frac{3}{5}$$

$$\therefore \text{A's wage} = \frac{3}{5} \times 3000 = \text{Rs } 1800$$

Q7.

**Answer :**

(c) 4:3

The number of days taken for working is the reciprocal of the rate of work.

$$\text{i.e., number of days taken} = \frac{1}{\text{rate of work}} = \frac{1}{\frac{3}{4}} = \frac{4}{3}$$

Q8.

**Answer :**

(c) 10 days

(A + B) can do a work in 12 days.

(B + C) can do a work in 20 days.

(C + A) can do a work in 15 days.

Now, we have :

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

$$\text{Work done by (B + C) in 1 day} = \frac{1}{20}$$

$$\text{Work done by (C + A) in 1 day} = \frac{1}{15}$$

$$\text{Net work done by } 2(A+B+C) = \frac{1}{12} + \frac{1}{20} + \frac{1}{15} = \frac{5+3+4}{60} = \frac{12}{60} = \frac{1}{5}$$

$$\text{Net work done by } (A+B+C) \text{ in 1 day} = \frac{1}{10}$$

$\therefore$  If A, B and C work together, they will complete the work in 10 days.

Q9.

**Answer :**

(c) 4 days

Three men can complete the work in 12 days.

Thus, one man can complete the work in 36 days.

$$\text{Rate of work done by one man in 1 day} = \frac{1}{36}$$

$$\text{Similarly, rate of work done by one woman in 1 day} = \frac{1}{5 \times 12} = \frac{1}{60}$$

Now, six men will do  $\frac{6}{36}$ , i.e.,  $\frac{1}{6}$  unit of work in a day.

Five women will do  $\frac{5}{60}$ , i.e.,  $\frac{1}{12}$  unit of work in a day.

$$\therefore \text{Total work done in 1 day} = \frac{1}{6} + \frac{1}{12} = \frac{1}{4} \text{ unit}$$

Thus, six men and five women will take 4 days to complete the work.

The work can be completed in 4 days.

Q10.

**Answer :**

(a) 10 days

$$\text{Work done by A in 1 day} = \frac{1}{15}$$

B is 50% more efficient than A.

$$\therefore \text{Work done by B in 1 day} = \frac{150}{100} \times \frac{1}{15} = \frac{1}{10}$$

Thus, B can complete the work in 10 days.

Q11.

**Answer :**

(c) 6 hours

$$\text{Time taken by A to finish the piece of work} = 7\frac{1}{2} \text{ hours} = \frac{15}{2} \text{ hours}$$

$$\text{Work done by A in 1 hour} = \frac{2}{15}$$

Let B take  $x$  hours to finish the work.

$$\text{Work done by B in 1 hours} = \frac{1}{x}$$

A can work 20% less than B, or A can do  $\frac{4}{5}$  of B's work.

$$\text{Now, } \frac{\left(\frac{4}{5}\right)}{1} = \frac{\left(\frac{2}{15}\right)}{\left(\frac{1}{x}\right)}$$

$$\Rightarrow \frac{4}{5} = \frac{2x}{15}$$

$$\Rightarrow x = \frac{15 \times 4}{5 \times 2} = 6 \text{ hours}$$

Q12.

**Answer :**

(b) 5 days

A can complete the work in 20 days.

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

B can complete the work in 12 days.

Work done by B in 1 day =  $\frac{1}{12}$

In 9 days, B completes  $\frac{9}{12}$ , i.e.,  $\frac{3}{4}$  of the work and leaves  $1 - \frac{3}{4}$ , i.e.,  $\frac{1}{4}$  of the work undone.

$\therefore$  Time taken by A =  $\frac{1}{4} \div \frac{1}{20} = \frac{1}{4} \times 20 = 5$  days

Q13.

Answer :

(c)

A can do the piece of work in 25 days.

Work done by A in 1 day =  $\frac{1}{25}$

B can do the same work in 20 days.

Work done by B in 1 day =  $\frac{1}{20}$

A alone completes  $\frac{10}{25}$ , i.e.,  $\frac{2}{5}$  of the work in 10 days. Now, work remaining =  $1$

$-\frac{2}{5} = \frac{3}{5}$  Work done by (A + B) in 1 day =  $\frac{1}{25} + \frac{1}{20} = \frac{9}{100}$   $\therefore$  Time taken if they

work together =  $\frac{3}{5} \div \frac{9}{100} = \frac{3}{5} \times \frac{100}{9} = \frac{20}{3} = 6\frac{2}{3}$  days

Q14.

Answer :

(b) 12 minutes

First pipe can fill a tank in 20 minutes.

Second pipe can fill the tank in 30 minutes.

Part of tank filled by the first pipe in one minute =  $\frac{1}{20}$

Part of tank filled by the second pipe in one minute =  $\frac{1}{30}$  Part of tank filled by both pipes

in one minute =  $\frac{1}{20} + \frac{1}{30} = \frac{5}{60} = \frac{1}{12}$

Thus, it takes 12 minutes to fill the tank using both the pipes.

\*\*\*\*\* END \*\*\*\*\*