CH 1 TIME AND WORK

ANSWERS AND EXPLANATIONS

EXERCISE 1

1. (e) ∵ 15 men can do 1 work in 3 days.

∴ 1 man can do 1 work in 3 × 15 days.

∴ 10 men can do the same work in

$$\frac{3\times15}{10}=\frac{9}{2}=4\frac{1}{2}\text{ days}$$

2. (c) ∵ 16 men can complete 1 work in 8 days.

∴ 1 man can complete 1 work in 8 × 16

∴ 12 men can complete the same work in

$$\frac{16\times8}{12}=\frac{32}{3}=10\frac{2}{3}\text{ days.}$$

3. (b) ∵ 17 men can complete 1 work in 12 days

∴ 1 man can complete the work in 12 × 17 days

∴ 6 men can complete the work in

$$\frac{12\times17}{6}=34\text{ days}$$

4. (c) Number of days $= \frac{12\times8}{12-8}$

= 24 days

5 (e) Required number of days

$$=\frac{6\times12}{6+12}$$

= 4 days

6. (a) 112 men can complete the whole work in

8 × 3 = 24 days

∴ Required no. of days

$$=\frac{12\times24}{16}=18$$

7. (c) Part processed by computer A in 1 minute $=\frac{1}{3}$

Part processed by computer B in 1 minute $=\frac{1}{5}$

Part processed by computer C in 1 minute

$$=\frac{42}{60}-\frac{1}{3}-\frac{1}{5}$$

$$=\frac{42-20-12}{60}=\frac{10}{60}=\frac{1}{6}$$

Hence, computer C will process 1 input 6 minutes.

8 (b) Required no. of binders

$$=\frac{800\times21\times15}{1400\times20}=9$$

9. (d) Required no. of days

$$=\frac{9800}{350}=28\text{ days}$$

10. (a) In an hour, George and Sonia together can copy $\frac{1}{6}+\frac{1}{8}=\frac{7}{24}$ of a 50-page manuscript.

i.e. In an hour they together can copy $\frac{7}{48}$ of the 100-page manuscript.

i.e. They together can copy a 100-page manuscript in $\frac{48}{7}$ hours, i.e. $6\frac{6}{7}$ hours.

11. (b) A's 1 day's work

$= \frac{1}{10}$ and B's 1 day's work $= \frac{1}{15}$

∴ (A + B)'s 1 day's work

$$=\left(\frac{1}{10}+\frac{1}{15}\right)=\frac{1}{6}.$$

So, both together will finish the work in 6 days.