CH 1 TIME AND WORK

ANSWERS AND EXPLANATIONS

EXERCISE 1

1. (c) ∴ 15 men can do 1 work in 3 days.
    ∴ 1 man can do 1 work in $3 \times 15$ days.
    ∴ 10 men can do the same work in
    \[
    \frac{3 \times 15}{10} = \frac{9}{2} = 4 \frac{1}{2} \text{ days.}
    \]

2. (c) ∴ 16 men can complete 1 work in 8 days.
    ∴ 1 man can complete 1 work in $8 \times 16$
    ∴ 12 men can complete the same work in
    \[
    \frac{16 \times 8}{12} = \frac{32}{3} = 10 \frac{2}{3} \text{ days.}
    \]

3. (b) ∴ 17 men can complete 1 work in 12 days
    ∴ 1 man can complete the work in $12 \times 17$
    ∴ 6 men can complete the work in
    \[
    \frac{12 \times 17}{6} = 34 \text{ days}
    \]

4. (c) Number of days = \frac{12 \times 8}{12 - 8}
    = 24 days

5 (e) Required number of days
    \[
    \frac{6 \times 12}{6 + 12} = 4 \text{ days}
    \]

6. (a) 112 men can complete the whole work in
    \[8 \times 3 = 24 \text{ days}\]
    ∴ Required no. of days
    \[
    = \frac{12 \times 24}{16} = 18
    \]

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

8 (b) Required no. of binders
    \[
    = \frac{800 \times 21 \times 15}{1400 \times 20} = 9
    \]

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
    \[
    \frac{48}{7} \text{ hours, i.e. } 6 \frac{6}{7} \text{ hours.}
    \]

11. (b) A’s 1 day’s work
    \[
    = \frac{1}{10} \text{ and B’s 1 day’s work } = \frac{1}{15}
    \]
    ∴ (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.