Ch-14 Time

1) There are two types of clocks; (a) Analog Clock (b) Digital Clock

2) In a clock there are 12 faces starts from 1,2,3,4……. upto 12.

3) Most of the clock have three hands:-

(a) Hour hand – It is a smaller hand which shows hours in the clock.

(b) Minute hand – It is a longer hand which shows minutes in the clock.

(c) Seconds hand – It is a long thin hand which moves very fast to measure seconds.

4) A day is divided into 2 periods of 12 hours each.

(a) AM – It stands for Ante-Meridian. It is the time between 12 midnight to 12 noon.

(b) PM - It stands for Post-Meridian. It is the time between 12 noon to 12 midnight.

5) Units of time are:-

$\qquad$ 1 hour = 60 min $\qquad$; $\qquad$ 1 min = 60 sec $\qquad$; $\qquad$ 1 day = 24 hours

$\qquad$ 1min = $\frac{1}{60}$ hour $\qquad$; $\qquad$ 1 sec = $\frac{1}{60}$ min

Self Practice 14A

1. How many seconds are there in the following times?

(a) 5 minutes (b) 12 minutes $\qquad$ (c) $\frac{2}{5}$ minute $\qquad$ (d) 3 hours

(e) 8 minutes 16 seconds $\qquad$ (f) 10 minutes 15 seconds

(g) $\frac{7}{15}$ minute 17 seconds $\qquad$ (h) $\frac{12}{30}$ minutes

Solution 1:-

(a) 5 minutes

$\quad$ 1 min = 60 sec
$\quad$ 5 min = 5 × 60 sec
$\qquad\quad$ = 300 sec.

(c) $\frac{2}{5}$ minutes

$\quad$ 1 min = 60 sec
$\quad$ $\frac{2}{5}$ min = $\frac{2}{\cancel{5}_1} \times \cancel{60}^{12}$ sec
$\qquad\quad$ = 24 sec

(d) 3 hours

1 hr = 60 min
3 hr = 3 × 60 min
= 180 min

1 min = 60 sec
180 min = 180 × 60 sec
= 10800 sec

(f) 10 minutes 15 seconds

1 min = 60 sec
10 min 15 sec = 10 × 60 sec + 15 sec
= 600 sec + 15 sec
= 615 sec

(g) $\frac{7}{15}$ minute 17 seconds

1 min = 60 sec

$\frac{7}{15}$ min 17 sec = $\frac{7}{\underset{1}{\cancel{15}}}$ × $\overset{4}{\cancel{60}}$ sec + 17 sec

= 28 sec + 17 sec
= 45 sec

In Q1. (b) , (e) and (h) are homework.

2. How many minutes are there in the following times?

(a) 7 hours   (b) $\frac{1}{4}$ hour   (c) $\frac{1}{2}$ hour   (d) 6 hours 25 minutes

(e) 3 hours 12 minutes (f) $3\frac{1}{2}$ hours   (g) $2\frac{7}{12}$ hours   (h) $8\frac{13}{15}$ hours

Solution 2:-

(a) 7 hours

1 hr = 60 min

7 hrs = 7 × 60 min
= 420 min

(c) $\frac{1}{2}$ hour

1 hr = 60 min

$\frac{1}{2}$ hr = $\frac{1}{\underset{1}{\cancel{2}}}$ × $\overset{30}{\cancel{60}}$ min

= 30 min

(d) 6 hrs 25 min

1 hr = 60 min

6 hr 25 min = 6×60 min + 25 min
= 360 min + 25 min
= 385 min

(g) $2\frac{7}{12}$ hours

1 hr = 60 min

$\frac{31}{12}$ hr = $31 \times \frac{\overset{5}{60}}{\underset{1}{12}}$ min

= 155 min

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In Q2. (b) , (e) , (f) and (h) are homework.

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3. Convert the following into minutes.

  (a) 780 seconds   (b) 540 seconds   (c) 360 seconds   (d) 1800 seconds

Solution 3:-

(a) 780 seconds

1 sec = $\frac{1}{60}$ min

78 sec = $\frac{780}{60}$ min

= 13 min

Rough work

$$60\overline{)780}\;\;(13$$
$$\underline{-60\downarrow}$$
$$180$$
$$\underline{-180}$$
$$0$$

(c) 360 seconds

1 sec = $\frac{1}{60}$ min

360 sec = $\frac{360}{60}$ min

= 6 min

Rough work

$$60\overline{)360}\;\;(6$$
$$\underline{-360}$$
$$0$$

(d) 1800 sec

$1 \sec = \dfrac{1}{60} \min$

$1800 \sec = \dfrac{1800}{60} \min$

$= 30 \min$

In Q3. (b) is homework.

4. **Convert the following into hours.**
   (a) 720 minutes   (b) 420 minutes   (c) 90 minutes   (d) 205 minutes

Solution 4:-

(a) 720 min

$1 \min = \dfrac{1}{60} \text{ hrs}$

$720 \min = \dfrac{720}{60} \text{ hrs}$

$= 12 \text{ hrs}$

(c) 90 minutes

$1 \text{ min} = \dfrac{1}{60} \text{ hrs}$

$90 \text{ min} = \dfrac{90}{60} \text{ hrs}$

$= 1 \text{ hr } 30 \text{ min}$

$$\begin{array}{r} 1 \\ 60 \overline{\smash{)}\,90} \\ -60 \\ \hline 30 \end{array}$$

(d) 205 minutes

$1 \text{ min} = \dfrac{1}{60} \text{ hrs}$

$205 \text{ min} = \dfrac{205}{60} \text{ hrs}$

$= 3 \text{ hrs } 25 \text{ min}$

$$\begin{array}{r} 3 \\ 60 \overline{\smash{)}\,205} \\ -180 \\ \hline 025 \end{array}$$

In Q4. (b) is homework.