Q1.Draw number lines and locate the points on them.
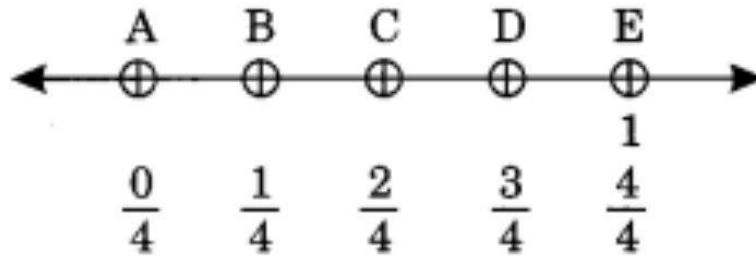
(a) $\dfrac{1}{2}, \dfrac{1}{4}, \dfrac{3}{4}, \dfrac{4}{4}$ (b) $\dfrac{1}{8}, \dfrac{2}{8}, \dfrac{3}{8}, \dfrac{7}{8}$

(c) $\dfrac{2}{5}, \dfrac{3}{5}, \dfrac{8}{5}, \dfrac{4}{5}$

Solution:

(a) $\dfrac{1}{2}, \dfrac{1}{4}, \dfrac{3}{4}, \dfrac{4}{4}$

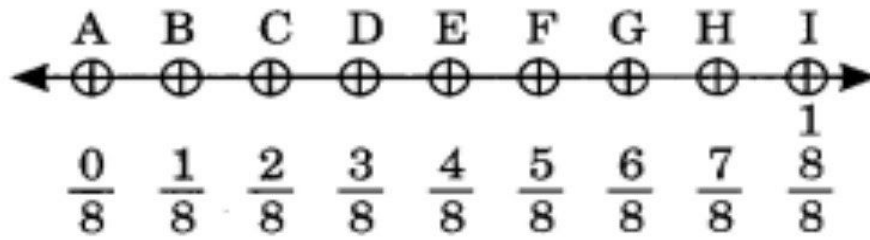We have divided the number line from 0 to 1 into four equal parts.
C represents 2/4=1/2
B represents 1/4
D represents 3/4
and E represents 4/4=1

(b) $\dfrac{1}{8}, \dfrac{2}{8}, \dfrac{3}{8}, \dfrac{7}{8}$

A B C D E F G H I

$$\dfrac{0}{8} \quad \dfrac{1}{8} \quad \dfrac{2}{8} \quad \dfrac{3}{8} \quad \dfrac{4}{8} \quad \dfrac{5}{8} \quad \dfrac{6}{8} \quad \dfrac{7}{8} \quad \dfrac{8}{8}$$

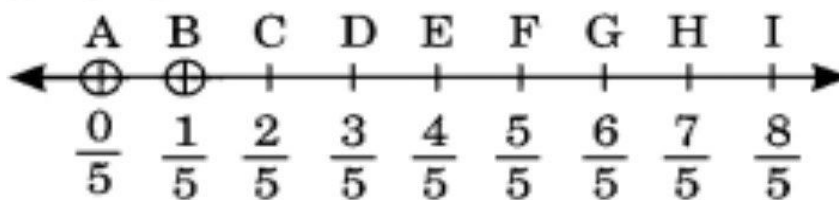We have divided the number line from 0 to 1 into eight equal parts.
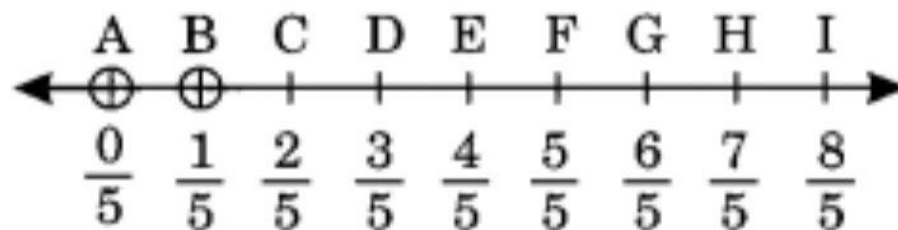
B represents $\dfrac{1}{8}$

C represents $\dfrac{2}{8}$

D represents $\dfrac{3}{8}$

and H represents $\dfrac{7}{8}$

(c) $\dfrac{2}{5}, \dfrac{3}{5}, \dfrac{8}{5}, \dfrac{4}{5}$

A B C D E F G H I

$$\dfrac{0}{5} \quad \dfrac{1}{5} \quad \dfrac{2}{5} \quad \dfrac{3}{5} \quad \dfrac{4}{5} \quad \dfrac{5}{5} \quad \dfrac{6}{5} \quad \dfrac{7}{5} \quad \dfrac{8}{5}$$

(c) $\dfrac{2}{5}, \dfrac{3}{5}, \dfrac{8}{5}, \dfrac{4}{5}$

$$
\begin{array}{ccccccccc}
\text{A} & \text{B} & \text{C} & \text{D} & \text{E} & \text{F} & \text{G} & \text{H} & \text{I} \\
\oplus & \oplus & + & + & + & + & + & + & + \\
\dfrac{0}{5} & \dfrac{1}{5} & \dfrac{2}{5} & \dfrac{3}{5} & \dfrac{4}{5} & \dfrac{5}{5} & \dfrac{6}{5} & \dfrac{7}{5} & \dfrac{8}{5}
\end{array}
$$

From the above number line, we have

C represents $\dfrac{2}{5}$

D represents $\dfrac{3}{5}$

E represents $\dfrac{4}{5}$

and I represents $\dfrac{8}{5}$

Q2.Express the following as mixed fractions:

(a) $\dfrac{20}{3}$ (b) $\dfrac{11}{5}$ (c) $\dfrac{17}{7}$

(d) $\dfrac{28}{5}$ (e) $\dfrac{19}{6}$ (f) $\dfrac{35}{9}$

Solution:

(a) $\dfrac{20}{3}$

We have,

$$3\,)\overline{20}\,(\,6$$
$$-18$$
$$\overline{2}$$

$\therefore\ \dfrac{20}{3} = 6\dfrac{2}{3}$

(b) $\dfrac{11}{5}$

We have,

$$5\,)\overline{11}\,(\,2$$
$$-10$$
$$\overline{1}$$

$\therefore\ \dfrac{11}{5} = 2\dfrac{1}{5}$

(c) $\dfrac{17}{7}$

We have,

$$7\,)\overline{17}\,(\,2$$
$$-14$$
$$\overline{3}$$

$\therefore\ \dfrac{17}{7} = 2\dfrac{3}{7}$

(d) $\dfrac{28}{5}$

We have,

$$5\overline{)28}(5$$
$$\underline{-25}$$
$$3$$

$\therefore \dfrac{28}{5} = 5\dfrac{3}{5}$

(e) $\dfrac{19}{6}$

We have,

$$6\overline{)19}(3$$
$$\underline{-18}$$
$$1$$

$\therefore \dfrac{19}{6} = 3\dfrac{1}{6}$

(f) $\dfrac{35}{9}$

We have,

$$9\overline{)35}(3$$
$$\underline{-27}$$
$$8$$

$\therefore \dfrac{35}{9} = 3\dfrac{8}{9}$

Q3.Express the following as improper fractions:

(a) $7\dfrac{3}{4}$　　　(b) $5\dfrac{6}{7}$　　　　　(c) $2\dfrac{5}{6}$

(d) $10\dfrac{3}{5}$　　　(e) $9\dfrac{3}{7}$　　　　　(f) $8\dfrac{4}{9}$

Solution:

(a) $7\dfrac{3}{4} = \dfrac{7\times 4+3}{4} = \dfrac{31}{4}$　　$\therefore$　$7\dfrac{3}{4} = \dfrac{31}{4}$

(b) $5\dfrac{6}{7} = \dfrac{5\times 7+6}{7} = \dfrac{41}{7}$　　$\therefore$　$5\dfrac{6}{7} = \dfrac{41}{7}$

(c) $2\dfrac{5}{6} = \dfrac{2\times 6+5}{6} = \dfrac{17}{6}$　　$\therefore$　$2\dfrac{5}{6} = \dfrac{17}{6}$

(d) $10\dfrac{3}{5} = \dfrac{10\times 5+3}{5} = \dfrac{53}{5}$　　$\therefore$　$10\dfrac{3}{5} = \dfrac{53}{5}$

(e) $9\dfrac{3}{7} = \dfrac{9\times 7+3}{7} = \dfrac{66}{7}$　　$\therefore$　$9\dfrac{3}{7} = \dfrac{66}{7}$

(f) $8\dfrac{4}{9} = \dfrac{8\times 9+4}{9} = \dfrac{76}{9}$　　$\therefore$　$8\dfrac{4}{9} = \dfrac{76}{6}$