

NCERT exemplar solutions by Dev Anoop ex 5.3

$$\textcircled{19} \quad -\frac{4}{3}, -1, -\frac{2}{3}, \dots, 4\frac{1}{3}$$

$$a = -\frac{4}{3}, \quad d = -1 + \frac{4}{3}$$

$$= \frac{1}{3}$$

$$a_n = 4\frac{1}{3}$$

$$a + (n-1)d = \frac{13}{3}$$

$$-\frac{4}{3} + (n-1)\frac{1}{3} = \frac{13}{3}$$

(x2)

$$-4 + n - 1 = 13$$

$$\Rightarrow n = 13 + 5$$

$$\Rightarrow n = 18$$

$$\textcircled{20} \quad a = -5$$

$$l = a_n = 45$$

$$S_n = 120$$

$$\frac{n}{2} [a+l] = 120$$

$$\Rightarrow \frac{n}{2} [-5 + 45] = 120$$

$$\Rightarrow \frac{n}{2} \times 40 = 120$$

$$\Rightarrow n = \frac{120 \times 2}{40} = 6$$

$$l = a_n = 45$$

$$a_6 = 45$$

Middle most terms are NCERT exemplar solutions by Dev Anoop

$$\frac{n}{2} = \frac{18}{2} \quad \left| \quad \frac{n+1}{2} = 10^{\text{th}} \right.$$

$$= 9^{\text{th}} \quad \left| \quad = 10^{\text{th}} \right.$$

$$a_9 = a + 8d$$

$$= -\frac{4}{3} + 8 \times \frac{1}{3}$$

$$= -\frac{4}{3} + \frac{8}{3}$$

$$= \frac{4}{3}$$

$$a_{10} = a + 9d$$

$$= -\frac{4}{3} + 9 \times \frac{1}{3}$$

$$= \frac{-4+9}{3}$$

$$= \frac{5}{3}$$

$$\text{Sum} = a_9 + a_{10}$$

$$= \frac{4}{3} + \frac{5}{3}$$

$$= \frac{9}{3}$$

$$= 3$$

$$a + 5d = 45$$

$$-5 + 5d = 45$$

$$\Rightarrow 5d = 50$$

$$\Rightarrow d = 10$$

$$\textcircled{21} \quad 1 + (-2) + (-5) + (-8)$$

$$+ \dots + (-236)$$

$$a = 1, \quad d = -2 - 1$$

$$= -3$$

$$a_n = -236$$

$$a + (n-1)d = -236$$

$$1 + (n-1)(-3) = -236$$

$$-3(n-1) = -237$$

$$n-1 = \frac{-237}{-3}$$

$$\Rightarrow n-1 = 79$$

$$\Rightarrow n = 80$$

$$S_{80} = \frac{80}{2} [1 + (-236)]$$

$$= 40 \times -235$$

$$= -9400$$