

$$\textcircled{8} -4 + (-1) + 2 + \dots + x = 437$$

$$a = -4, d = -1 - (-4) \\ = -1 + 4 \\ = 3$$

$$a_n = x$$

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

$$-4 + (n-1)3 = x$$

$$3(n-1) = x + 4$$

$$\Rightarrow n-1 = \frac{x+4}{3}$$

$$\Rightarrow n = \frac{x+4+3}{3}$$

$$= \frac{x+7}{3}$$

$$S_n = 437$$

$$\frac{n}{2}(a + a_n) = 437$$

$$\frac{x+7}{2 \times 3}(-4 + x) = 437$$

$$(x+7)(x-4) = 437 \times 6$$

$$\Rightarrow x^2 + 3x - 28 = 2622$$

$$\Rightarrow x^2 + 3x - 2650 = 0$$

$$\Rightarrow x^2 + 53x - 50x - 2650 = 0$$

$$\Rightarrow x(x+53) - 50(x+53) = 0$$

$$\Rightarrow (x+53)(x-50) = 0$$

$$\Rightarrow x = -53, x = 50$$

rejected
 $\because d > 0$

$$\therefore x = 50$$

$\textcircled{9}$ Instalments are
1000, 1100, 1200, 1300, ...

$$a = 1000, d = 100$$

$$a_{30} = a + 29d$$

$$= 1000 + 29 \times 100$$

$$= 3900$$

amount paid in

20 instalments

$$= S_{30}$$

$$= \frac{30}{2} [2 \times 1000 + 29 \times 100]$$

$$= 15(2000 + 2900)$$

$$= 15 \times 4900$$

$$= \text{Rs } 73500$$

amount to be paid
after 30 instalments

$$= 118000 - 73500$$

$$= \text{Rs } 44500$$