

2(ii) Multiples of 2 as well as 5 are

10, 20, 30, ..., 500

$$a = 10, d = 20 - 10 = 10$$

$$a_n = 500$$

$$a + (n-1)d = 500$$

$$10 + (n-1)10 = 500$$

$$(\div 10) 1 + n - 1 = 50$$

$$\Rightarrow n = 50$$

$$S_{50} = \frac{50}{2} (10 + 500)$$

$$= 25 \times 510$$

$$= 12750$$

2(iii)

Multiples of 2 are

2, 4, 6, 8, ..., 500

$$a = 2, d = 4 - 2 = 2$$

$$a_n = 500$$

$$a + (n-1)d = 500$$

$$2 + (n-1)2 = 500$$

$$(\div 2) 1 + n - 1 = 250$$

$$\Rightarrow n = 250$$

$$S_{250} = \frac{250}{2} (2 + 500)$$

$$= 125 \times 502$$

$$= 62750$$

Multiples of 5 are

5, 10, 15, 20, ..., 495, 500

$$a = 5, d = 10 - 5 = 5$$

$$a_n = 500$$

$$a + (n-1)d = 500$$

$$5 + (n-1)5 = 500$$

$$(\div 5) 1 + n - 1 = 100$$

$$\Rightarrow n = 100$$

$$S_n = \frac{100}{2} (5 + 500)$$

$$= \frac{50}{2} \times 505$$

$$= 25250$$

Sum of integers from 1 to 500 which are multiples of 2 or 5

= Sum of multiples of 2 +
Sum of mul. of 5 -
Sum of mul. of both 2 and 5

$$= 62750 + 25250 - 12750$$

$$= 75250$$