

Exercise 1A

Questions 18:

Let us find the LCM of 64, 80 and 96 through prime factorization:

2	64	2	80	2	96
2	32	2	40	2	48
2	16	2	20	2	24
2	8	2	10	2	12
2	4		5	2	6
	2				3

$$64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^6$$

$$80 = 2 \times 2 \times 2 \times 2 \times 5 = 2^4 \times 5$$

$$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 = 2^{5} \times 3$$

$$= 2^6 \times 5 \times 3 = 64 \times 15 = 960$$
cm $= 9.6$ m

Therefore, the least length of the cloth that can be measured an exact number of times by the rods of 64cm, 80cm and 96cm = 9.6m

Questions 19:

Let us find the LCM of 48, 72 and 108 through prime factorization:

2	48	2	72	2	108
2	24	_ 2	36	2	54
2	12	2	18	3	27
2	6	3	9	3	9
	3		3		3

$$48 = 2 \times 2 \times 2 \times 2 \times 3 = 2^4 \times 3$$

$$72 = 2 \times 2 \times 2 \times 3 \times 3 = 2^3 \times 3^2$$

$$108 = 2 \times 2 \times 3 \times 3 \times 3 = 2^2 \times 3^3$$

 \therefore LCM of 48,72,108 is $2^4 \times 3^3$

$$= 16 \times 27 \text{ sec} = 432 \text{ sec} = 7 \text{ min } 12 \text{ sec}$$

Three bells toll together after 7 min 12 sec

Questions 20:

Interval of beeping together = LCM (60 seconds, 62 seconds)

The prime factorization of 60 and 62:

$$60 = 30 \times 2$$
, $62 = 31 \times 2$
L.C.M of 60 and 62 is $30 \times 31 \times 2 = 1860$ sec = 31min electronic device will beep after every 31minutes
After 10 a.m., it will beep at 10 hrs 31 minutes

Questions 21:

$$2 = 2 \times 1$$

$$4 = 2 \times 2$$

$$6 = 2 \times 3$$

$$8 = 2 \times 2 \times 2$$

$$10 = 2 \times 5$$

$$12 = 2 \times 2 \times 3$$

L.C.M of 2, 4, 6, 8, 10, 12 minutes

After every 2 hours they toll together.

Required number of times =
$$\left(\frac{30}{2} + 1\right) = 16$$
 times

******* END ******