Exercise 1A

Questions 15:
Let us find the prime factorization of 1001 and 910:
1001 = 11 x 7 x 13
910 = 2 x 5 x 7 x 13

11	1001
7	91
	13

2	910
5	455
7	91
	13

H.C.F. of 1001 and 910 is 7 x 13 = 91
Maximum number of students = 91
Questions 16:
Let us find the HCF of 336, 240 and 96 through prime factorization:

2	336
2	168
2	84
2	42
3	21
	7

2	240
2	120
2	60
2	30
3	15
	5

2	96
2	48
2	24
2	12
2	6
	3

$$336 = 2 \times 2 \times 2 \times 2 \times 3 \times 7 = 2^4 \times 3 \times 7$$

$$240 = 2 \times 2 \times 2 \times 2 \times 3 \times 5 = 2^4 \times 3 \times 5$$

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

$$H.C.F = 2^4 \times 3 = 16 \times 3 = 48$$

Each stack of book will contain 48 books
Number of stacks of the same height

$$= \frac{240}{48} + \frac{336}{48} + \frac{96}{48} = 5 + 7 + 2 = 14$$

Questions 17:

Length of ceiling = 15m 17cm = 1517 cm
Its breadth = 9m 2cm = 902 cm

$$
\begin{array}{l}
902\overline{)1517\,(\,1} \\
\quad 902 \\
\hline
615)\;902\,(1 \\
\quad 615 \\
\hline
287)\;615\,(2 \\
\quad 574 \\
\hline
41)\;287\,(\,7 \\
\quad 287 \\
\hline
\quad\times \\
\hline
\end{array}
$$

$\therefore$ H.C.F. of 1517 and 902 = 41
Maximum size of tile = 41cm × 41cm

$$\text{Least number of tiles} = \frac{1517 \times 902}{41 \times 41} = 37 \times 22 = 814$$

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