EXERCISE 2.9

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1. Determine the LCM of the numbers given below:
(i) 48, 60
(ii) 42, 63
(iii) 18, 17
(iv) 15, 30, 90
(v) 56, 65, 85
(vi) 180, 384, 144
(vii) 108, 135, 162
(viii) 28, 36, 45, 60
Solution:

(i) 48, 60
We know that prime factorization of
$48 = 2 \times 2 \times 2 \times 2 \times 3$
$60 = 2 \times 2 \times 3 \times 5$

Hence, the required LCM $= 2 \times 2 \times 2 \times 2 \times 3 \times 5 = 240$

(ii) 42, 63
We know that prime factorization of
$42 = 2 \times 3 \times 7$
$63 = 3 \times 3 \times 7$

Hence, the required LCM $= 2 \times 3 \times 3 \times 7 = 126$

(iii) 18, 17
We know that prime factorization of
$18 = 2 \times 3 \times 3$
$17 = 17$

Hence, the required LCM $= 2 \times 3 \times 3 \times 17 = 306$

(iv) 15, 30, 90
We know that prime factorization of
$15 = 3 \times 5$
$30 = 2 \times 3 \times 5$
$90 = 2 \times 3 \times 3 \times 5$

Hence, the required LCM $= 2 \times 3 \times 3 \times 5 = 90$

(v) 56, 65, 85
We know that prime factorization of
$56 = 2 \times 2 \times 2 \times 7$
$65 = 5 \times 13$
$85 = 5 \times 17$

Hence, the required LCM $= 2 \times 2 \times 2 \times 5 \times 7 \times 13 \times 17 = 61880$

(vi) 180, 384, 144
We know that prime factorization of
180 = 2 × 2 × 3 × 3 × 5
384 = 2 × 2 × 2 × 2 × 2 × 2 × 2 × 3
144 = 2 × 2 × 2 × 2 × 3 × 3

Hence, the required LCM = 2 × 2 × 2 × 2 × 2 × 2 × 2 × 3 × 3 × 5 = 5760

(vii) 108, 135, 162
We know that prime factorization of
108 = 2 × 2 × 3 × 3 × 3
135 = 3 × 3 × 3 × 5
162 = 2 × 3 × 3 × 3 × 3

Hence, the required LCM = 2 × 2 × 3 × 3 × 3 × 3 × 5 = 1620

(viii) 28, 36, 45, 60
We know that prime factorization of
28 = 2 × 2 × 7
36 = 2 × 2 × 3 × 3
45 = 3 × 3 × 5
60 = 2 × 2 × 3 × 5

Hence, the required LCM = 2 × 2 × 3 × 3 × 5 × 7 = 1260