

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

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$60 = 2 \times 2 \times 3 \times 5$$

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

**(ii) 42, 63**

We know that prime factorization of

$$42 = 2 \times 3 \times 7$$

$$63 = 3 \times 3 \times 7$$

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

**(iii) 18, 17**

We know that prime factorization of

$$18 = 2 \times 3 \times 3$$

$$17 = 17$$

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

**(iv) 15, 30, 90**

We know that prime factorization of

$$15 = 3 \times 5$$

$$30 = 2 \times 3 \times 5$$

$$90 = 2 \times 3 \times 3 \times 5$$

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

**(v) 56, 65, 85**

We know that prime factorization of

$$56 = 2 \times 2 \times 2 \times 7$$

$$65 = 5 \times 13$$

$$85 = 5 \times 17$$

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

(vi) 180, 384, 144

We know that prime factorization of

$$180 = 2 \times 2 \times 3 \times 3 \times 5$$

$$384 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3$$

$$144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$$

Hence, the required LCM =  $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 5760$

(vii) 108, 135, 162

We know that prime factorization of

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

$$135 = 3 \times 3 \times 3 \times 5$$

$$162 = 2 \times 3 \times 3 \times 3 \times 3$$

Hence, the required LCM =  $2 \times 2 \times 3 \times 3 \times 3 \times 3 \times 5 = 1620$

(viii) 28, 36, 45, 60

We know that prime factorization of

$$28 = 2 \times 2 \times 7$$

$$36 = 2 \times 2 \times 3 \times 3$$

$$45 = 3 \times 3 \times 5$$

$$60 = 2 \times 2 \times 3 \times 5$$

Hence, the required LCM =  $2 \times 2 \times 3 \times 3 \times 5 \times 7 = 1260$