

Class 6 Maths**Prime Time – Factors & Multiples - NCERT Solutions**

1. Find all the multiples of 40 that lie between 310 and 410
2. Who am I?
 - a. I am a number less than 40. One of my factors is 7. The sum of my digits is 8.
 - b. I am a number less than 100. Two of my factors are 3 and 5. One of my digits is 1 more than the other.
3. A number for which the sum of all its factors is equal to twice the number is called a perfect number. The number 28 is a perfect number. Its factors are 1, 2, 4, 7, 14 and 28. Their sum is 56 which is twice 28. Find a perfect number between 1 and 10.
4. Find the common factors of:
 - a. 20 and 28
 - b. 35 and 50
 - c. 4, 8 and 12
 - d. 5, 15 and 25
5. Find any three numbers that are multiples of 25 but not multiples of 50.
6. Anshu and his friends play the 'idli-vada' game with two numbers, which are both smaller than 10. The first time anybody says 'idli- vada' is after the number 50. What could the two numbers be which are assigned 'idli' and 'vada'?
7. In the treasure hunting game, Grumpy has kept treasures on 28 and 70. What jump sizes will land on both the numbers?

8. In the diagram below, Guna has erased all the numbers except the common multiples. Find out what those numbers could be and fill in the missing numbers in the empty regions.
9. Find the smallest number that is a multiple of all the numbers from 1 to 10 except for 7.
10. Find the smallest number that is a multiple of all the numbers from 1 to 10.

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Answers**1. Multiples of 40 between 310 and 410****Multiples of 40:**40, 80, 120, 160, 200, 240, 280, **320, 360, 400, 440...****Answer: 320, 360, 400****2. Who am I?****(a)****Number < 40, factor is 7 → multiples of 7:**

7, 14, 21, 28, 35

Check sum of digits:

7 → 7

14 → 1+4=5

21 → 2+1=3

35 → 3+5=8 ✓**Answer: 35****(b)****Number < 100, factors include 3 and 5 → must be multiple of 15****Multiples of 15:**

15, 30, 45, 60, 75, 90

Check digits differ by 1:

15 → 1 & 5 (diff 4)

30 → 3 & 0 (diff 3)

45 → 4 & 5 (diff 1 ✓)**Answer: 45****3. Perfect number between 1 and 10****Check 6:****Factors → 1, 2, 3, 6****Sum = 1+2+3+6 = 12 = 2 × 6**

Answer: 6

4. Common factors

(a) 20 and 28

20 → 1, 2, 4, 5, 10, 20

28 → 1, 2, 4, 7, 14, 28

Answer: 1, 2, 4

(b) 35 and 50

35 → 1, 5, 7, 35

50 → 1, 2, 5, 10, 25, 50

Answer: 1, 5

(c) 4, 8 and 12

Common factors = 1, 2, 4

(d) 5, 15 and 25

Common factors = 1, 5

5. Multiples of 25 but not 50

Multiples of 25: 25, 50, 75, 100, 125...

Remove multiples of 50

Answer: 25, 75, 125

6. Idli-Vada game

“Idli-vada” comes at LCM of two numbers

We need LCM > 50

Try:

6 and 9 → LCM = 18 ✗

7 and 8 → LCM = 56 ✓

Answer: 7 and 8

7. Jump sizes for 28 and 70

Find common factors

28 → 1, 2, 4, 7, 14, 28

70 → 1, 2, 5, 7, 10, 14, 35, 70

Answer: 1, 2, 7, 14

8. Multiples diagram

We need two numbers whose multiples include 24, 48, 72.

Let's check:

- $24 = 12 \times 2$ and also $24 = 24 \times 1$
- $48 = 12 \times 4$ and 24×2
- $72 = 12 \times 6$ and 24×3

So, these numbers are multiples of 12 and 24

Final Answer for the Diagram

- **Multiples of 12 (left circle):**
12, 24, 36, 48, 60, 72, 84...
 - **Multiples of 24 (right circle):**
24, 48, 72, 96...
 - **Common multiples (middle region):**
24, 48, 72
-

9. Smallest number multiple of 1–10 except 7

Find LCM of: 1, 2, 3, 4, 5, 6, 8, 9, 10

Prime factors:

$2^3, 3^2, 5$

LCM = $2^3 \times 3^2 \times 5 = 360$

10. Smallest number multiple of 1–10

LCM of 1–10

Prime factors:

 $2^3, 3^2, 5, 7$

$$\text{LCM} = 2^3 \times 3^2 \times 5 \times 7 = 2520$$

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