

1. Two fountains spray water at different intervals. One sprays every 6 minutes, the other every 9 minutes. If they spray together at 2:15 pm, when will they next spray together?
2. A school bell rings every 12 minutes, and a classroom timer beeps every 8 minutes. They both sound at 9:04 am. What time will they next sound together?
3. Two warning lights on a ship flash at different intervals. One flashes every 5 minutes, the other every 7 minutes. If both flash at 11:20 am, when is their next simultaneous flash?
4. A park fountain releases water every 10 minutes, while a nearby clock chime rings every 6 minutes. They occur together at 3:00 pm. When next?
5. Two traffic lights reset at intervals of 9 and 4 minutes. If they reset together at 7:36 am, when next?
6. A rotating beacon turns on every 15 minutes, and a horn sounds every 20 minutes. Both activate at 5:05 pm. When next?
7. A sprinkler sprays every 3 minutes, another every 11 minutes. They spray together at 6:02 am. When next?
8. Two automated gates open every 14 and 21 minutes. If they open together at 12:28 pm, when next?
9. A billboard updates every 18 minutes, and an announcement plays every 12 minutes. Both at 10:06 am. When next?
10. A warning light blinks every 16 minutes, alarm every 24 minutes. Both at 1:40 pm. When next?

1. Solution:

The intervals are 6 and 9 minutes.

Prime factors: $6 = 2 \times 3$, $9 = 3^2$.

LCM = $2 \times 3^2 = 18$ minutes.

2:15 pm + 18 minutes = 2:33 pm.

2. Solution:

Intervals: 12 and 8 minutes.

Prime factors: $12 = 2^2 \times 3$, $8 = 2^3$.

LCM = $2^3 \times 3 = 24$ minutes.

9:04 am + 24 minutes = 9:28 am.

3. Solution:

Intervals: 5 and 7 minutes.

Both prime $\rightarrow$ LCM = 35 minutes.

11:20 am + 35 minutes = 11:55 am.

4. Solution:

Intervals: 10 and 6 minutes.

Prime factors: $10 = 2 \times 5$, $6 = 2 \times 3$.

LCM = 30 minutes.

3:00 pm + 30 minutes = 3:30 pm.

5. Solution:

Intervals: 9 and 4 minutes.

Prime factors: $9 = 3^2$, $4 = 2^2$.

LCM = 36 minutes.

7:36 am + 36 minutes = 8:12 am.

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6. Solution:

Intervals: 15 and 20 minutes.

Prime factors: $15 = 3 \times 5$, $20 = 2^2 \times 5$.

LCM = 60 minutes.

5:05 pm + 1 hour = 6:05 pm.

7. Solution:

Intervals: 3 and 11 minutes.

Both prime $\rightarrow$ LCM = 33 minutes.

6:02 am + 33 minutes = 6:35 am.

8. Solution:

Intervals: 14 and 21 minutes.

Prime factors: $14 = 2 \times 7$, $21 = 3 \times 7$.

LCM = 42 minutes.

12:28 pm + 42 minutes = 1:10 pm.

9. Solution:

Intervals: 18 and 12 minutes.

Prime factors: $18 = 2 \times 3^2$, $12 = 2^2 \times 3$.

LCM = 36 minutes.

10:06 am + 36 minutes = 10:42 am.

10. Solution:

Intervals: 16 and 24 minutes.

Prime factors: $16 = 2^4$, $24 = 2^3 \times 3$.

LCM = 48 minutes.

1:40 pm + 48 minutes = 2:28 pm.