HCF and LCM: Practice Questions - Set 1

Section A

1. Find the HCF of 36 and 84.

2. Find the LCM of 12 and 18.

3. Find the HCF of 45, 60 and 75.

4. Find the LCM of 20, 30 and 24.

5. Find the HCF and LCM of $2^3 \times 3^2$ and $2^2 \times 3^4 \times 5$, leaving answers in index form.

6. (a) Express 168 as a product of prime factors (index form).

   (b) Hence find the HCF and LCM of 168 and 210.

7. Find the smallest integer k such that $72k$ is a perfect square. Hence find $\sqrt{72k}$.

8. Find the smallest integer m such that $54m$ is a perfect cube. Hence write $54m$ as a cube.

9. Find the smallest integer n such that $90n$ is a multiple of 144.

10. Find the smallest integer q such that $360q$ is a perfect square. Hence find $\sqrt{360q}$.

Section B

1. 48 apples and 60 oranges are packed into identical bags with no leftovers.

   (a) Find the maximum number of bags.

   (b) Find the number of apples and oranges per bag.

2. 84 red beads and 126 blue beads are used to make identical necklaces (all beads used).

   (a) Find the maximum number of necklaces.

   (b) Find the number of red and blue beads in each necklace.

3. Three bells ring every 15 min, 20 min and 30 min. They ring together at 09:10. When is the next time they ring together?

4. Two lights flash every 24 s and 36 s. They flash together at 14:05:00. When will they next flash together?

5. A rectangular floor is 3.6 m × 2.4 m. It is tiled with identical square tiles (largest possible).

   (a) Find the tile side length (cm).

(b) Find the number of tiles needed.

6. Ropes of length 2.1 m and 3.5 m are cut into equal pieces of greatest possible length (no leftover).

   (a) Find the length of each piece (cm).

   (b) Find the number of pieces from each rope.

7. A hall has N chairs. When arranged in rows of 6 or rows of 8, there are always 2 chairs left over. Find the least possible N.

8. Three buses arrive every 12 min, 18 min and 30 min. They arrive together at 07:40. Find the next time they arrive together.

9. Boxes of height 6 cm and 10 cm are stacked (separately) to the same height.

   (a) Find the minimum common height.

   (b) Find the number of 6 cm boxes and 10 cm boxes required.

10. Ribbons of 90 cm, 120 cm and 150 cm are cut into equal pieces of greatest possible length (no leftover).

    (a) Find the length of each piece.

    (b) Find the number of pieces from each ribbon.

Answers

Section A

1. 12

2. 36

3. 15

4. 120

5. HCF $= 2^2 \times 3^2$;   LCM $= 2^3 \times 3^4 \times 5$

6. (a) $168 = 2^3 \times 3 \times 7$ (b) HCF $= 42$, LCM $= 840$

7. $k = 2$; $\sqrt{72k} = 12$

8. $m = 4$; $54m = 216 = 6^3$

9. $n = 8$

10. $q = 10$; $\sqrt{360q} = 60$

Section B

1. (a) 12 bags   (b) 4 apples, 5 oranges

2. (a) 42 necklaces   (b) 2 red, 3 blue

3. 10:10

4. 14:06:12

5. (a) 120 cm   (b) 6 tiles

6. (a) 70 cm   (b) 3 pieces, 5 pieces

7. 26

8. 10:40

9. (a) 30 cm   (b) 5 boxes (6 cm), 3 boxes (10 cm)

10. (a) 30 cm   (b) 3 pieces, 4 pieces, 5 pieces