Highest Common Factor and Lowest Common Multiple

Core Worksheet

Worked Examples & Guided Practice

I Do (Teacher Model) Find the Highest Common Factor (HCF) and Lowest Common Multiple (LCM) of 84 and 120.

We Do (Guided Practice) Find the Highest Common Factor (HCF) and Lowest Common Multiple (LCM) of 72 and 108.

You Do (Independent Practice) Find the Highest Common Factor (HCF) and Lowest Common Multiple (LCM) of 90 and 126.

Challenge (Extension) $A = 2^3 \times 3^2 \times 5$ and $B = 2^2 \times 3^4 \times 7$.
Given that $\text{LCM}(A, B, C) = 2^4 \times 3^4 \times 5 \times 7 \times 11$, find the smallest possible value of C.

Practice Perfect Questions

Q1. Find the HCF of 48 and 72.

Q2. Find the LCM of 15 and 25.

Q3. Given $A = 2^3 \times 3 \times 5^2$ and $B = 2^2 \times 3^3 \times 5$, find the HCF of A and B.

Q4. Given $A = 2^3 \times 3 \times 5^2$ and $B = 2^2 \times 3^3 \times 5$, find the LCM of A and B.

Q5. Two lights flash at intervals of 18 seconds and 24 seconds respectively. They flash together at 10:00 am. At what time will they next flash together?

Q6. The HCF of two numbers is 6 and their LCM is 120. If one number is 24, find the other number.

Answers & Worked Solutions

Model Solutions

- **I Do:** $84 = 2^2 \times 3 \times 7$, $120 = 2^3 \times 3 \times 5$. HCF $= 2^2 \times 3 = 12$; LCM $= 2^3 \times 3 \times 5 \times 7 = 840$.
- **We Do:** $72 = 2^3 \times 3^2$, $108 = 2^2 \times 3^3$. HCF $= 2^2 \times 3^2 = 36$; LCM $= 2^3 \times 3^3 = 216$.
- **You Do:** $90 = 2 \times 3^2 \times 5$, $126 = 2 \times 3^2 \times 7$. HCF $= 2 \times 3^2 = 18$; LCM $= 2 \times 3^2 \times 5 \times 7 = 630$.
- **Challenge:** C must supply missing prime factors/powers: $C = 2^4 \times 11 = 176$.

Practice Perfect Questions Solutions

Q1. HCF $= 24$

Q2. LCM $= 75$

Q3. HCF $= 2^2 \times 3 \times 5 = 60$

Q4. LCM $= 2^3 \times 3^3 \times 5^2 = 5400$

Q5. LCM$(18, 24) = 72$ s $= 1$ min 12 s $\implies$ 10:01:12 am

Q6. Other number $= \dfrac{6 \times 120}{24} = 30$