HCF and LCM with Venn Diagrams

Year 9 · Number · y9-hcf-lcm-venn

Name: _____ Date: _____

Class: _____ Score: _____ / _____

Instructions
Answer every question in Practice. Try the Challenge section once Practice is complete. 10 questions in total.

Practice

1. Find the HCF of 20 and 30 by listing factors.

2. LCM(4, 5) = ?

3. The prime factors of 12 are 2, 2, 3. The prime factors of 18 are 2, 3, 3. Placed in a Venn diagram, 2 and 3 go in the overlap (shared by both), leaving one extra 2 in the 12-circle and one extra 3 in the 18-circle. What is the HCF of 12 and 18 (multiply the numbers in the overlap)?

4. Using the same Venn diagram for 12 and 18 (overlap: 2, 3; only in 12's circle: 2; only in 18's circle: 3), what is the LCM (multiply every number in the whole diagram)?

5. The HCF is found by multiplying only the numbers in the OVERLAP of the Venn diagram -- not the whole diagram. For 8 (2,2,2) and 12 (2,2,3), the overlap is 2,2. What is the HCF?

6. The LCM is found by multiplying EVERY number in the Venn diagram, overlap included. For 8 (2,2,2) and 12 (2,2,3), the full diagram has 2,2,2,3. What is the LCM?

7. The HCF is the largest shared factor; the LCM is the smallest shared multiple -- they answer different questions. Find the HCF of 16 and 24.

8. Build the Venn diagram step by step: write 20 as 2x2x5 and 28 as 2x2x7. The shared prime factors (2, 2) go in the overlap. What is the HCF of 20 and 28?

Challenge

1. Using prime factorisation, find the HCF and LCM of 36 and 60. Give as: HCF, LCM.

2. The HCF of two numbers is 6 and their LCM is 90. If one of the numbers is 18, what is the other number?

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