M9

ANSWERS:

# REVIEW IV

**LCM – The least common multiple**

- To find the least common multiple of two numbers is to find the smallest number to which both numbers multiply to.
- There are two different methods to find the LCM
    - Listing all multiples before finding the common one.
    - Prime factorizing and selecting all unique factors and factors that repeat the most.

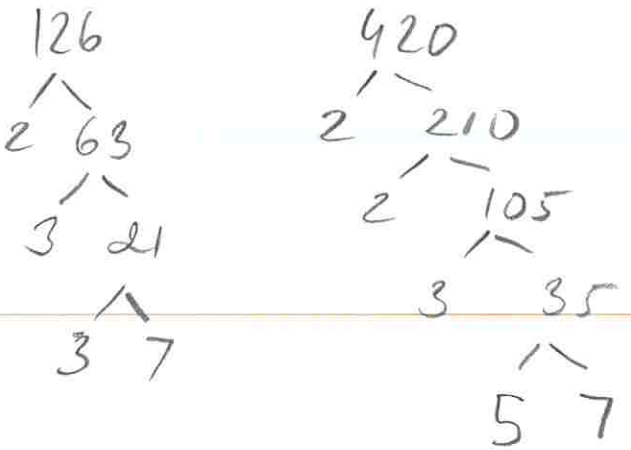
Example: Find the least common multiple of 6 and 14 by listing multiples.

6 → 6, 12, 18, 24, 30, 36, 42, 48,

14 → 14, 28, 42

∴ lcm(6, 14) = 42.

Example: Using prime factorization, find the least common multiple of 126 and 420.



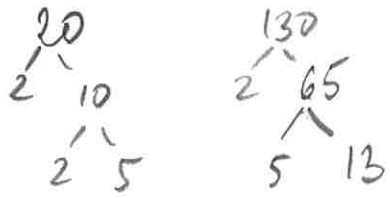
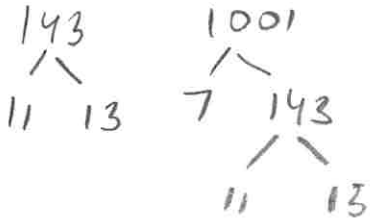
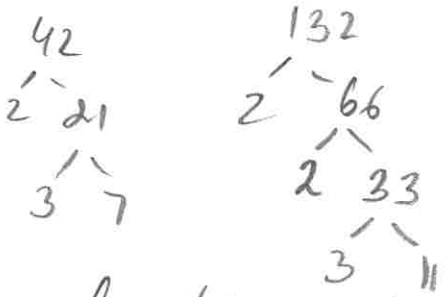
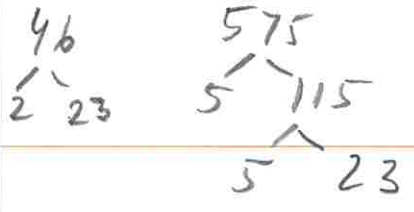

126 = 2 × 3 × 3 × 7

420 = 2 × 2 × 3 × 5 × 7

2 × 2 × 3 × 3 × 5 × 7 = 1260

∴ lcm(126, 420) = 1260.

Practice:
Using prime factorization, find the least common multiple for the given pairs of numbers.

| | |
|---|---|
| 20, 130 |  <br>$20 = 2 \times 2 \times 5$<br>$130 = 2 \times 5 \times 13$<br>$2 \times 2 \times 5 \times 13 = 260$<br>$\therefore \text{lcm}(20, 130) = 260.$ |
| 143, 1001 |  <br>$143 = 11 \times 13$<br>$1001 = 7 \times 11 \times 13$<br>$7 \times 11 \times 13 = 1001$<br>$\therefore \text{lcm}(143, 1001) = 1001.$ |
| 42, 132 |  <br>$42 = 2 \times 3 \times 7$<br>$132 = 2 \times 2 \times 3 \times 11$<br>$7 \times 2 \times 2 \times 3 \times 11 = 924$<br>$\therefore \text{lcm}(42, 132) = 924.$ |
| 46, 575 |  <br>$46 = 2 \times 23$<br>$575 = 5 \times 5 \times 23$<br>$2 \times 5 \times 5 \times 23 = 1150$<br>$\therefore \text{lcm}(46, 575) = 1150.$ |