Name _____ Date _____

Challenge: Three Numbers and Bigger LCMs

Beyond grade 6. Find the GCF of each set of three, and the LCM of each pair.

1. GCF of 5, 20, 50

2. LCM of 10 and 28

3. LCM of 10 and 14

4. GCF of 8, 12, 40

5. GCF of 12, 16, 48

6. GCF of 32, 56, 80

7. GCF of 14, 16, 20

8. LCM of 25 and 27

9. GCF of 45, 54, 63

10. LCM of 13 and 29

11. LCM of 11 and 14

12. LCM of 10 and 18

Answer Key: Challenge: Three Numbers and Bigger LCMs

Each answer shows the prime factorizations used to find it.

1. **5** 5 is prime; $20 = 2^2 \times 5$; $50 = 2 \times 5^2$. Shared primes, lowest powers: 5, so the GCF is 5.
2. **140** $10 = 2 \times 5$; $28 = 2^2 \times 7$. Every prime, highest power: $2^2 \times 5 \times 7$, so the LCM is 140.
3. **70** $10 = 2 \times 5$; $14 = 2 \times 7$. Every prime, highest power: $2 \times 5 \times 7$, so the LCM is 70.
4. **4** $8 = 2^3$; $12 = 2^2 \times 3$; $40 = 2^3 \times 5$. Shared primes, lowest powers: 2^2, so the GCF is 4.
5. **4** $12 = 2^2 \times 3$; $16 = 2^4$; $48 = 2^4 \times 3$. Shared primes, lowest powers: 2^2, so the GCF is 4.
6. **8** $32 = 2^5$; $56 = 2^3 \times 7$; $80 = 2^4 \times 5$. Shared primes, lowest powers: 2^3, so the GCF is 8.
7. **2** $14 = 2 \times 7$; $16 = 2^4$; $20 = 2^2 \times 5$. Shared primes, lowest powers: 2, so the GCF is 2.
8. **675** $25 = 5^2$; $27 = 3^3$. Every prime, highest power: $3^3 \times 5^2$, so the LCM is 675.
9. **9** $45 = 3^2 \times 5$; $54 = 2 \times 3^3$; $63 = 3^2 \times 7$. Shared primes, lowest powers: 3^2, so the GCF is 9.
10. **377** 13 is prime; 29 is prime. Every prime, highest power: 13×29, so the LCM is 377.
11. **154** 11 is prime; $14 = 2 \times 7$. Every prime, highest power: $2 \times 7 \times 11$, so the LCM is 154.
12. **90** $10 = 2 \times 5$; $18 = 2 \times 3^2$. Every prime, highest power: $2 \times 3^2 \times 5$, so the LCM is 90.