

2.7 Exercises. Those with asterisks have complete solutions attached.

1. Find the LCM and the GCF for 6 and 22.
2. Find the LCM and the GCD for 60 and 210.
3. Find the LCM and the GCF for 8 and 20.
4. Find the LCM and the GCD for 18 and 30.
5. Find the LCM and GCF for 16 and 100.
6. Find the LCM and GCD for 24 and 96.
- 7.* Find the LCM and GCF for 66 and 165.
8. Find the LCM and GCD for 7 and 11.
9. Find the LCM and GCF for 81 and 90.
10. Find the LCM and GCD for 15 and 45.
11. Find the LCM and GCF for 6, 22, 35.
12. Find the LCM and GCD for 15, 42, and 66.
- 13.* Find the LCM and GCF for 18, 30, and 42.
14. Find the LCM and GCD for 14, 21, and 42.
15. Find the LCM and GCF for 30, 66, 390.

Perform the following operations

16. $\frac{2}{7} - \frac{3}{14} + \frac{5}{42}$

17. $-\frac{1}{12} + \frac{4}{15} - \frac{3}{21}$

18. $\frac{5}{18} - \frac{1}{20} + \frac{5}{12}$

$$19.* \quad \frac{5}{42} - \frac{7}{8} + \frac{3}{10}$$

$$20. \quad \frac{3}{16} + \frac{7}{66} - \frac{5}{33}$$

$$21. \quad \frac{1}{30} - \frac{5}{66} + \frac{1}{390}$$

$$22. \quad \frac{1}{5} - \frac{6}{55} + \frac{3}{22}$$

$$23.* \quad \frac{1}{80} + \frac{4}{33} - \frac{1}{6}$$

$$24. \quad -\frac{2}{15} - \frac{1}{66} - \frac{5}{42}$$

$$25. \quad -\frac{1}{30} - \frac{5}{66} - \frac{7}{20}$$

Simplify the following fractions by canceling the GCF.

$$26. \quad \frac{165}{396}$$

$$27. \quad \frac{42}{98}$$

$$28. \quad \frac{130}{182}$$

$$29.* \quad \frac{72}{84}$$

$$30. \quad \frac{90}{165}$$

31. $\frac{85}{102}$

32. $\frac{136}{153}$

33. $\frac{650}{850}$

34. $\frac{315}{385}$

35. $\frac{336}{462}$

Solutions:

7. Find the LCM and GCF for 66 and 165.

| | | | | |
|-----|---|---|----|---|
| 66 | 2 | 3 | 11 | |
| 165 | | 3 | 11 | 5 |

GCF is 33
LCM is 330

13. Find the LCM and GCF for 18, 30, and 42.

| | | | | | |
|----|---|---|---|---|---|
| 18 | 2 | 3 | 3 | | |
| 30 | 2 | 3 | | 5 | |
| 42 | 2 | 3 | | | 7 |

GCF is 6
LCM is 630

19. $\frac{5}{42} - \frac{7}{8} + \frac{3}{10}$

| | | | | | | |
|----|---|---|---|---|---|---|
| 42 | 2 | 3 | 7 | | | |
| 8 | 2 | | | 2 | 2 | |
| 10 | 2 | | | | | 5 |

LCM is $840 = 2^3(3)(5)(7)$

$$\frac{5}{42} - \frac{7}{8} + \frac{3}{10} = \frac{5}{2(3)(7)} \cdot \frac{2^2 \cdot 5}{2^2 \cdot 5} + \frac{-7}{8} \cdot \frac{3(5)(7)}{3(5)(7)} + \frac{3}{10} \cdot \frac{2^2(3)(7)}{2^2(3)(7)}$$

$$\frac{100 - 735 + 252}{840} = -\frac{383}{840}$$

383 is a prime number so the calculation is complete.

A really quick way to check to see if a number up to 10,000 is prime is to go to Number Gossip (google it) and insert it in the gossip box.

$$23. \quad \frac{1}{80} + \frac{4}{33} - \frac{1}{6}$$

| | | | | | |
|----|---|---|---|---|----|
| 80 | 2 | 2 | 3 | 5 | |
| 33 | | | 3 | | 11 |
| 6 | 2 | | 3 | | |

LCM is 600

$$\frac{1}{80} + \frac{4}{33} - \frac{1}{6} = \frac{1}{80} \cdot \frac{11}{11} + \frac{4}{33} \cdot \frac{40}{40} + \frac{-1}{6} \cdot \frac{110}{110} = \frac{11 + 160 - 110}{600} = \frac{81}{600} = \frac{3 \cdot 27}{3 \cdot 200} = \frac{27}{200}$$

$$29. \quad \frac{72}{84} = \frac{12 \cdot 6}{12 \cdot 7} = \frac{6}{7}$$