The **least common denominator (LCD)** of two fractions is the least common multiple of the denominators. Use the LCD to add or subtract fractions with different denominators.

EXAMPLE Add: $\dfrac{3}{10} + \dfrac{5}{8}$

The least common multiple of the denominators, 10 and 8, is 40.
So, the least common denominator (LCD) of the fractions is 40.

Rewrite the fractions using the LCD of 40: $\dfrac{3}{10} = \dfrac{3 \cdot 4}{10 \cdot 4} = \dfrac{12}{40}$ and $\dfrac{5}{8} = \dfrac{5 \cdot 5}{8 \cdot 5} = \dfrac{25}{40}$

Add the numerators and keep the same denominator: $\dfrac{3}{10} + \dfrac{5}{8} = \dfrac{12}{40} + \dfrac{25}{40} = \dfrac{37}{40}$

PRACTICE

Write the prime factorization of the number. If the number is prime, write *prime*.

1. 42   **2.** 104   **3.** 75   **4.** 23   **5.** 70

6. 27   **7.** 72   **8.** 180   **9.** 47   **10.** 100

11. 88   **12.** 49   **13.** 83   **14.** 142   **15.** 32

Find the greatest common factor (GCF) of the numbers.

16. 4, 6   **17.** 24, 40   **18.** 10, 25   **19.** 55, 44   **20.** 28, 35

21. 8, 20   **22.** 5, 8   **23.** 15, 12   **24.** 16, 32   **25.** 70, 90

26. 2, 18   **27.** 9, 21   **28.** 36, 42, 54   **29.** 7, 12, 17   **30.** 45, 63, 81

Find the least common multiple (LCM) of the numbers.

31. 4, 16   **32.** 2, 14   **33.** 5, 6   **34.** 16, 24   **35.** 6, 8

36. 12, 20   **37.** 3, 6   **38.** 18, 8   **39.** 9, 12   **40.** 9, 5

41. 10, 15   **42.** 7, 9   **43.** 40, 4, 5   **44.** 25, 30, 3   **45.** 27, 81, 33

Perform the indicated operation(s). Simplify the result.

46. $\dfrac{1}{2} + \dfrac{3}{8}$ **47.** $\dfrac{3}{4} - \dfrac{5}{16}$ **48.** $\dfrac{7}{10} - \dfrac{3}{5}$ **49.** $\dfrac{1}{2} + \dfrac{1}{3}$

50. $\dfrac{5}{12} + \dfrac{1}{3}$ **51.** $\dfrac{4}{5} + \dfrac{1}{8}$ **52.** $\dfrac{1}{10} + \dfrac{3}{4}$ **53.** $\dfrac{5}{6} - \dfrac{1}{2}$

54. $\dfrac{7}{8} - \dfrac{11}{16}$ **55.** $\dfrac{9}{10} - \dfrac{1}{3}$ **56.** $\dfrac{2}{3} - \dfrac{1}{6}$ **57.** $\dfrac{1}{4} + \dfrac{2}{5}$

58. $\dfrac{4}{5} + \dfrac{1}{12} - \dfrac{5}{6}$ **59.** $\dfrac{3}{2} - \dfrac{3}{10} - \dfrac{3}{4}$ **60.** $\dfrac{9}{10} - \dfrac{1}{5} - \dfrac{1}{2}$ **61.** $\dfrac{7}{8} + \dfrac{3}{16} - \dfrac{1}{4}$

62. $\dfrac{8}{9} + \dfrac{2}{3} - \dfrac{7}{12}$ **63.** $\dfrac{1}{6} + \dfrac{4}{15} + \dfrac{1}{3}$ **64.** $\dfrac{1}{2} + \dfrac{2}{3} + \dfrac{1}{4}$ **65.** $\dfrac{15}{16} - \dfrac{7}{10} + \dfrac{1}{2}$

66. $\dfrac{5}{24} - \dfrac{1}{6} + \dfrac{7}{12}$ **67.** $\dfrac{1}{2} + \dfrac{3}{5} - \dfrac{1}{4}$ **68.** $\dfrac{5}{6} - \dfrac{3}{5} - \dfrac{2}{15}$ **69.** $\dfrac{4}{9} + \dfrac{3}{4} - \dfrac{7}{12}$