Chapter 02

Fractions

True / False Questions

1. A proper fraction is when the numerator is greater than the denominator.

   True   False

2. The writing of a whole number and a proper fraction is an improper fraction.

   True   False

3. 4/5 is a proper fraction.

   True   False

4. When a mixed number is converted to an improper fraction, the new numerator is placed over the old denominator.

   True   False

5. The greatest common divisor can be zero.

   True   False

6. Inspection as well as the step approach could be used to find the least common denominator.

    True   False

7. In the step approach the last divisor used is the greatest common divisor.

    True   False

8. Fractions should never be reduced to their lowest terms.

    True   False

9. The greatest common divisor and the least common denominator are really the same.

    True   False

10. The least common denominator of fractions can be found by observation or by the use of prime numbers.

    True   False

11. 4 is a prime number.

    True   False

12. 2, 5, 7, 11, and 13 are all examples of prime numbers.

    True   False

13. Cancellation is a technique to reduce fractions to the lowest terms.

    True   False

14. The reciprocal is not used in dividing fractions.

    True   False

15. Reducing a fraction to the lowest terms does not change the fraction's value.

    True   False

16. Raising a fraction to higher terms does change the value of the fraction.

    True   False

17. A mixed number is a whole number and a proper fraction.

    True   False

Multiple Choice Questions

18. 1 4/5 is an example of a(n):

    A. Proper fraction
    B. Mixed number
    C. Improper fraction
    D. Complex fraction
    E. None of these

19. 13/2 converted to a mixed number is:

    A. 6 1/6

    B. 6 1/2

    C. 6 1/3

    D. 6 3/4

    E. None of these

20. The greatest common divisor of 20/30 is:

    A. 2

    B. 5

    C. 1

    D. 10

    E. None of these

21. The first step in using the step approach to finding the greatest common divisor is to:

    A. Use the observation method

    B. Divide the larger number into the smaller number

    C. Divide the numerator into the denominator

    D. Divide the remainder into the divisor

    E. None of these

22. The first step in converting 30/50 = ?/200 to higher terms is to:

    A. Multiply 4 times 30

    B. Divide 200 by 50

    C. Divide 50 by 200

    D. Multiply 200 times 30

    E. None of these

23. 4/5 + 6/5 equals:

    A. 10/5

    B. 5/1

    C. 2

    D. 100

    E. None of these

24. In adding 4/5 + 18/100 the least common denominator is:

    A. 5

    B. 20

    C. 50

    D. 100

    E. None of these

25. Which of the following is not a prime number?

    A. 5

    B. 11

    C. 19

    D. 24

    E. None of these

26. The LCD of 6/20, 9/5, 7/50, and 3/4 is:

    A. 5

    B. 4

    C. 20

    D. 50

    E. None of these

27. Canceling:

    A. Raises fractions to the highest terms

    B. Results in multiplying a number evenly into the top and bottom of a fraction or fractions

    C. Has a definite set of rules

    D. Is an alternative method to reducing fractions to the lowest terms

    E. None of these

28. The reciprocal is used:

    A. In multiplying fractions

    B. To replace the cancellation method

    C. In dividing whole numbers

    D. In dividing fractions

    E. None of these

29. Which step is not included in the step approach to calculating the greatest common divisor?

    A. Divide small number into larger number

    B. Divide remainder into divisor of last step

    C. Continue dividing remainder into divisor till no remainder exists

    D. Divide larger number into smaller number

    E. None of these

30. To find LCD by prime numbers you should:

    A. Take numerators and arrange in a row

    B. Divide numerators by highest prime number

    C. Continue division until no prime number will divide into at least three numbers

    D. Your first step should be to take denominators and arrange in a row

    E. None of these

31. A trip to Portland, Oregon, from Boston will take 7 3/4 hours. Assuming we are two-thirds of the way there, how much longer in hours will the trip take?

    A. 7/12

    B. 1 7/12

    C. 2 7/12

    D. 2 1/2

    E. None of these

32. Shelley Tilton bought 1 3/4 lbs of sliced roast beef, 8 1/2 lbs of sliced ham, and 3/4 lb of coleslaw at Albertson's Market. What was the total weight of her purchases?

    A. 11 lbs

    B. 10 lbs

    C. 9½ lbs

    D. 12 lbs

    E. None of these

33. Joe Jackson worked 8 hours on Monday, 4 1/4 hours on Tuesday, 6 1/8 hours on Wednesday, 7 1/4 hours on Thursday, and 8 1/8 hours on Friday. Calculate the total number of hours Joe worked for the week.

    A. 35

    B. 33 1/8

    C. 32 3/4

    D. 33 3/4

    E. None of these

34. Cartons of humidifiers are stocked in 25,500 sq. ft. of warehouse space at Home Depot. If each carton requires 4 1/4 sq. ft. of space, how many cartons can be stored in this space?

    A. 60

    B. 600

    C. 6,000

    D. 60,000

    E. None of these

35. At a local Subway, Jill Jones owns 1/4 of the company and Roger Moore owns 1/8. Bill Moore owns the rest. What part is owned by Bill?

    A. 1/4

    B. 1/8

    C. 3/8

    D. 5/8

    E. None of these

36. Matt Kaminsky bought a Volvo that is 3 3/4 times as expensive as the car his parents bought. If his parents paid $8,000 for theirs, what is the cost of Matt's car?

    A. $26,000

    B. $28,000

    C. $29,000

    D. $30,000

    E. None of these

37. The price of a new Apple iPod has increased by 1/4. If the original price of the Apple was $200, what is the price today?

   A. $150

   B. $250

   C. $200

   D. $175

   E. None of these

38. The price of a Panasonic 3D flat screen television decreased by 1/5. If the original price was $1,500, what is the price today?

   A. $300

   B. $1,200

   C. $1,800

   D. $1,000

   E. None of these

39. Lisa Wolf has 20 1/8 days of vacation per year at Walmart. To date she has taken 4 1/2 days in January, 3 1/4 days in February, and 4 1/8 days in March. How much more vacation time is Lisa entitled to?

   A. 9 1/4

   B. 11 7/8

   C. 8 1/4

   D. 8 1/2

   E. None of these

40. A machine at Staples photocopies 12 ¼ pages per minute. If the machine runs 700 minutes, how many pages will be photocopied?

    A. 8,750

    B. 7,850

    C. 5,875

    D. 8,575

    E. None of these

41. Jeff Jones is paid $60 per day at his Job at J.C. Penney. Jeff became ill on Monday and had to leave after 2/5 of a day. What did he earn on Monday? (Assume no work, no pay)

    A. $24

    B. $36

    C. $30

    D. $25

    E. None of these

42. The price of a baseball ticket at Yankee Stadium increased by 2 1/4 over the last three years. If the original price of a ticket was $60, what is the price of the ticket today?

    A. $195

    B. $150

    C. $135

    D. $153

    E. None of these

43. Alice Hall, who loves to cook, makes an apple cake (serves six) for her family. The recipe calls for 2 1/2 pounds of apples, 2 1/4 cups of flour, 1/5 cup of margarine, 1 1/4 cups of sugar, and 4 eggs. Since guests are coming, she would like to make this cake so it will serve 24. How many pounds of apples should she use?

   A. 10
   B. 15
   C. 17 1/2
   D. 10 1/4
   E. None of these

44. In a recent, local taste contest testing Coke against Pepsi, it was found that 3/5 of all people surveyed preferred the taste of Coke. If 7,500 people were in the survey, how many chose Pepsi?

   A. 4,500
   B. 5,400
   C. 3,500
   D. 3,000
   E. None of these

45. The price of a $200,000 home listed by REMAX was reduced by 1/20. What is the new price?

   A. $180,000
   B. $190,000
   C. $170,000
   D. $160,000
   E. None of these

46. Mia Wong bought a new Bose radio for $280. Bill, a friend of Mia's, can afford to pay only ¾ as much as Mia. What is the most Bill could pay for the radio?

    A. $70

    B. $210

    C. $200

    D. $190

    E. None of these

47. Jane Ring cut a-6ft Subway sandwich into 1 ½-ft sandwiches. How many sandwiches can be cut from the 6-ft. sub?

    A. 6

    B. 8

    C. 5

    D. 10

    E. None of these

48. The price of a Swatch watch increased 1 3/4 times from the price last year. If this year's price is $175, what was last year's price?

    A. $75

    B. $100

    C. $60

    D. $90

    E. None of these

49. An American Airlines trip from Boston to Los Angeles takes 8 ½ hours. Assuming we are ¼ of the way, how long has the trip taken so far?

   A. 1 1/16

   B. 7 7/16

   C. 2 1/10

   D. 6 7/16

   E. None of these

50. Lee Wine bought pizza from Pizza Hut for her son's party. The owner of the store said it would feed eight. Assuming six children show up for the party, what part of the pizza remains uneaten?

   A. 1/4

   B. 3/4

   C. 1/3

   D. 4/5

   E. None of these

51. The greatest common divisor of 60/216 is:

   A. 2

   B. 12

   C. 10

   D. 5

   E. None of these

52. The LCD for 3/10, 20/25, and 18/75 is:

    A. 5

    B. 15

    C. 25

    D. 7

    E. None of these

53. Jordan traveled 6/7 of an estimated 1,800-mile trip. How many miles remain in her trip:

    A. 154

    B. 257

    C. 291

    D. 400

    E. None of these

54. The cost of a regular price ticket to a Saint Louis Cardinal baseball game was $60. During the World Series the price increased by 2/5. What did the fans pay?

    A. $65

    B. $69

    C. $80

    D. $84

    E. None of these

55. The average number of students for Professor Shannon's finance class was 20. During the fall semester there was an increase of 3/5 in students. How many students are registered for his class in the fall?

A. 32

B. 24

C. 30

D. 26

E. None of these

Matching Questions

56. Match the following terms with their definitions.

1. Cancellation.   Reducing process. ____

2. Fraction.   Bottom part of fraction. ____

                            Expresses a part of a whole

3. Proper fractions.   number. ____

4. Numerator.   Largest possible number. ____

5. Prime numbers.   Equivalent to the original. ____

                            Numerator is equal to or greater

6. Reciprocal.   than the denominator. ____

7. Denominator.   Smallest whole number. ____

8. Least common   No number divides evenly except 1

denominator (LCD).   into numerator. ____

                            Whole number and a proper

9. Improper fraction.   fraction. ____

10. Lowest terms.   Top of fraction. ____

11. Greatest common

divisor.   Number divisible by itself and 1. ____

12. Mixed numbers.   Numerator less than denominator. ____

                            Interchanging denominator and

13. Higher terms.   numerator. ____

Short Answer Questions

57. Indicate type of fraction:

3 4/7

58. Indicate type of fraction:

6/7

59. Indicate type of fraction:

10/9

60. Convert to a mixed number:

89/6

61. Convert to an improper fraction:

14 1/8

62. A. Find greatest common divisor and B. Convert to lowest terms. For (A) use the step approach or the observation method:

18/66

A. _____ B. _____

63. Convert to higher terms:

8/9 = 96/?

64. Add (reduce to lowest terms):

6/15 + 2/15

65. Add (Reduce to lowest terms):

1/7 + 5/14

66. Find LCD by using prime numbers (show work):

1/8 + 1/4 + 1/3 + 1/6

67. Subtract (reduce to lowest terms if necessary):

    13 1/7 - 5 5/21

68. Multiply (cancel as needed):

    11 3/8 × 6 6/7

69. At Victor's grocery, each case of Cheerios takes up 3 1/2 square feet. If Victor sets aside 6,930 square feet, how many cases of Cheerios can Victor store?

70. On a plane trip to Hawaii, the baggage weight projected was 2,182 1/4 lbs. The actual weight of all bags totaled 2,095 1/3 lbs. By how much was the projected weight overstated?

71. Acme Track Incorporated received 360 pairs of Nike running shoes. Each pair sells for $58. Acme found 1/9 of the pairs to be defective and returned them. Assuming each pair cost Acme $26, what profit did Acme make assuming all nondefective sneakers were sold?

72. Last year's sales at Mel's cinema totaled $144,600. This year's sales should increase by 1/3. How much should sales increase by, and what will sales be in the new year?

73. Indicate type of fraction:

3 ¾

74. Indicate type of fraction:

5/6

75. Indicate type of fraction:

    10/9

76. Convert to a mixed number:

    113/6

77. Convert to an improper fraction:

    9 1/8

78. Calculate greatest common divisor by step approach and reduce to lowest terms:

180/440

79. Convert to higher terms:

7/19 = ?/114

80. Find LCD by using prime numbers (show work):

1/2 + 1/6 + 1/8 + 1/4

81. 5/9 ÷ 5 =

82. At Flynn Manufacturing, 30 ¼ rolls of tape are made each hour on a new high-speed machine. If the machine runs 12 hours, how many rolls of tape will be produced?

83. At Kentucky Fried chicken, a survey showed 2/3 of all people preferred skinless chicken over the regular chicken. If 2,400 people responded to the survey, how many preferred regular chicken?

84. At United Airlines, Pete Roy worked 8 3/4 hours on Monday, 4 1/2 hours on Tuesday, 9 1/4 hours on Wednesday, 10 1/2 hours on Thursday, and 7 hours on Friday. How many total hours did Pete work during the week?

85. The Red Sox announced that the price of their $50 bleacher seats will increase next year by 1/5. What will be the new ticket price?

86. Indicate type of fraction:

3 1/8

87. Indicate type of fraction:

6/7

88. Indicate type of fraction:

12/11

89. Indicate type of fraction:

5/6

90. Indicate type of fraction:

15/14

91. Indicate type of fraction:

12 9/10

92. Convert to a mixed number:

88/7

93. Convert to a mixed number:

77/3

94. Convert to an improper faction:

12 1/7

95. A. Find greatest common divisor and B. Convert to lowest terms. For (A) use the step approach or the observation method:

90/320

96. Convert to an improper fraction:

11 1/9

97. A. Find greatest common divisor and B. Convert to lowest terms. For (A) use the step approach or the observation method.

12/96

98. 8/9 = 72/?

99. 3/4 = 36/?

100. Add (reduce to lowest terms):

4/15 + 1/15

101. Add (reduce to lowest terms):

2/7 + 3/14

102. Add (reduce to lowest terms):

3/7 + 1/21

103. Add (reduce to lowest terms):

4/7 + 13/14

104. Find LCD by using prime numbers (show work):

1/2 + 1/5 + 1/4 + 1/20

105. Find LCD by using prime numbers (show work):

1/3 + 1/4 + 1/6 + 1/8

106. Subtract (reduce to lowest terms if necessary):

$$12 \ 1/8$$
$$- \ 9 \ 2/3$$

107. Subtract (reduce to lowest terms if necessary):

$$14 \ 1/4$$
$$-3 \ 3/4$$

108. Multiply (cancel as needed and express final answer as a mixed number):

12 3/8 × 7 1/6

109. John Morse worked 8 1/2 hours on Monday, 2 3/4 hours on Tuesday, 7 1/2 hours on Wednesday, 7 1/4 hours on Thursday, and 8 hours on Friday. Calculate the total number of hours John worked for the week.

110. Al, Ronda, and Rony enter into a partnership. Al owns 1/4 of the company, and Ronda owns 1/8. Calculate the part that is owned by Rony.

111. Hilton Hotels announced a price decrease of 1/10 from its $290 weekend package. What is the new weekend package rate?

112. Bill Murray has 16 3/4 days of vacation per year. To date, he has taken 1 3/4 days in January, 4 2/3 days in February, and 2 1/6 days in March. How much more vacation time is Bill entitled to?

113. A trip to New York from Boston will take 4 1/2 hours. Assuming we are two-thirds of the way there, how much longer will the trip take?

114. The price of a new car increased by 2/3 over the last five years. If the original price of the car was $6,000, what is the price today?

115. Mel Corp. produces 18¼ widgets each hour. If the machine runs 16 hours, how many widgets will be produced?

116. Cans of soup are stocked in 1,250 sq. ft. of warehouse space. If each can requires 2 1/2 sq. ft. of space, how many cans of soup can be stored in this space?

117. John Rone bought a home that is 5 1/2 times as expensive as the home his parents bought. If his parents paid $35,000 for theirs, what is the cost of Rone's home?

118. In a recent taste testing survey, it was found that 5/7 of all people surveyed preferred the taste of "A" chicken over "B" chicken. If 3,500 people were in the survey, how many favored "A"? What is the number of people who chose "B"?

119. Convert to an improper fraction:

16 3/8

120. Indicate what type of fraction:

12 4/7

121. Complete:

10 1/8 divided by 3/8

122. At Truman Middle School 2/3 of the girls preferred playing capture the flag at gym. If 600 girls responded to the survey, how many preferred playing something else?

123. Reduce the following to the lowest terms:

162/567

Chapter 02 Fractions Answer Key

True / False Questions

1.   A proper fraction is when the numerator is greater than the denominator.

    <u>FALSE</u>

    Review your notes on terminology and vocabulary related to this material.

Blooms: Remember
Learning Objective: 02-01 (1) Recognize the three types of fractions
Level of Difficulty: 1 Basic
Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

2.   The writing of a whole number and a proper fraction is an improper fraction.

    <u>FALSE</u>

    Review your notes on terminology and vocabulary related to this material.

Blooms: Remember
Learning Objective: 02-01 (1) Recognize the three types of fractions
Level of Difficulty: 1 Basic
Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

3.   4/5 is a proper fraction.

      TRUE

      Review your notes on terminology and vocabulary related to this material.

4.   When a mixed number is converted to an improper fraction, the new numerator is placed over
      the old denominator.

      TRUE

      Review your notes on terminology and vocabulary related to this material.

5.   The greatest common divisor can be zero.

      FALSE

      Review your notes on terminology and vocabulary related to this material.

6.   Inspection as well as the step approach could be used to find the least common denominator.

      <u>TRUE</u>

      Review your notes on terminology and vocabulary related to this material.

7.   In the step approach the last divisor used is the greatest common divisor.

      <u>TRUE</u>

      Review your notes on terminology and vocabulary related to this material.

8.   Fractions should never be reduced to their lowest terms.

      <u>FALSE</u>

      Review your notes on terminology and vocabulary related to this material.

9.   The greatest common divisor and the least common denominator are really the same.

    <u>FALSE</u>

    Review your notes on terminology and vocabulary related to this material.

10.   The least common denominator of fractions can be found by observation or by the use of prime numbers.

    <u>TRUE</u>

    Review your notes on terminology and vocabulary related to this material.

11.   4 is a prime number.

    <u>FALSE</u>

    Review your notes on terminology and vocabulary related to this material.

12.   2, 5, 7, 11, and 13 are all examples of prime numbers.

        TRUE

        Review your notes on terminology and vocabulary related to this material.

Blooms: Remember
Learning Objective: 02-03 (1) Add and subtract fractions
Level of Difficulty: 3 Challenge
Topic Area: LU 02-03: Basic Math Functions with Fractions

13.   Cancellation is a technique to reduce fractions to the lowest terms.

        TRUE

        Review your notes on terminology and vocabulary related to this material.

Blooms: Remember
Learning Objective: 02-03 (2) Multiply fractions
Learning Objective: 02-03 (3) Divide fractions
Level of Difficulty: 1 Basic
Topic Area: LU 02-03: Basic Math Functions with Fractions

14.   The reciprocal is not used in dividing fractions.

        FALSE

        Review your notes on terminology and vocabulary related to this material.

Blooms: Remember
Learning Objective: 02-03 (3) Divide fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions

15.   Reducing a fraction to the lowest terms does not change the fraction's value.

    <u>TRUE</u>

    Review your notes on terminology and vocabulary related to this material.

Blooms: Remember
Learning Objective: 02-01 (3) Convert fractions to lowest and highest terms
Level of Difficulty: 1 Basic
Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

16.   Raising a fraction to higher terms does change the value of the fraction.

    <u>FALSE</u>

    Review your notes on terminology and vocabulary related to this material.

Blooms: Remember
Learning Objective: 02-01 (3) Convert fractions to lowest and highest terms
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

17.   A mixed number is a whole number and a proper fraction.

    <u>TRUE</u>

    Review your notes on terminology and vocabulary related to this material.

Blooms: Remember
Learning Objective: 02-01 (1) Recognize the three types of fractions
Level of Difficulty: 1 Basic
Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

Multiple Choice Questions

18.   1 4/5 is an example of a(n):

A. Proper fraction

B. Mixed number

C. Improper fraction

D. Complex fraction

E. None of these

A mixed number is a fraction with a whole number added to it.

19.   13/2 converted to a mixed number is:

A. 6 1/6

B. 6 1/2

C. 6 1/3

D. 6 3/4

E. None of these

Convert improper fractions by using division and showing the remaining fraction.

20.   The greatest common divisor of 20/30 is:

A. 2

B. 5

C. 1

D. 10

E. None of these

10 is the largest number that goes into both 20 and 30.

21.   The first step in using the step approach to finding the greatest common divisor is to:

A. Use the observation method

B. Divide the larger number into the smaller number

C. Divide the numerator into the denominator

D. Divide the remainder into the divisor

E. None of these

This step allows you to identify which whole number best reduces the fraction.

22.   The first step in converting 30/50 = ?/200 to higher terms is to:

    A. Multiply 4 times 30

    B. Divide 200 by 50

    C. Divide 50 by 200

    D. Multiply 200 times 30

    E. None of these

You want to try to determine what number to multiply the numerator by to get an equivalent fraction.

23.   4/5 + 6/5 equals:

    A. 10/5

    B. 5/1

    C. 2

    D. 100

    E. None of these

With common denominators, you need to add only the numerators.

24. In adding 4/5 + 18/100 the least common denominator is:

    A. 5

    B. 20

    C. 50

    D. 100

    E. None of these

With common denominators, you need to add only the numerators.

25. Which of the following is not a prime number?

    A. 5

    B. 11

    C. 19

    D. 24

    E. None of these

24 can be divided by 2, 3, 4, 6, 8, and 12. Prime numbers can be divided only by 1 and themselves.

26. The LCD of 6/20, 9/5, 7/50, and 3/4 is:

    A. 5
    B. 4
    C. 20
    D. 50
    E. None of these

Looking at 50, the largest denominator, only 5 can be divided evenly into 50. 4 and 20 cannot.

27. Canceling:

    A. Raises fractions to the highest terms
    B. Results in multiplying a number evenly into the top and bottom of a fraction or fractions
    C. Has a definite set of rules
    D. Is an alternative method to reducing fractions to the lowest terms
    E. None of these

Using canceling helps shorten the need for larger numbers being calculated.

28. The reciprocal is used:

    A. In multiplying fractions

    B. To replace the cancellation method

    C. In dividing whole numbers

    <u>D.</u> In dividing fractions

    E. None of these

Dividing fractions is the opposite of multiplying fractions, so you need the divisor [the second fraction] to be inverted.

29. Which step is not included in the step approach to calculating the greatest common divisor?

    A. Divide small number into larger number

    B. Divide remainder into divisor of last step

    C. Continue dividing remainder into divisor till no remainder exists

    <u>D.</u> Divide larger number into smaller number

    E. None of these

It would not be possible to divide the larger number into the smaller.

30.   To find LCD by prime numbers you should:

    A. Take numerators and arrange in a row

    B. Divide numerators by highest prime number

    C. Continue division until no prime number will divide into at least three numbers

    D. Your first step should be to take denominators and arrange in a row

    E. None of these

    Sorting the denominators will assist you in finding common denominators with more
    organization.

31.   A trip to Portland, Oregon, from Boston will take 7 3/4 hours. Assuming we are two-thirds of
    the way there, how much longer in hours will the trip take?

    A. 7/12

    B. 1 7/12

    C. 2 7/12

    D. 2 1/2

    E. None of these

    Multiply 7 3/4 by the 1/3 of the trip left to travel. Estimate by determining what 1/3 of 8 is.

32. Shelley Tilton bought 1 3/4 lbs of sliced roast beef, 8 1/2 lbs of sliced ham, and 3/4 lb of coleslaw at Albertson's Market. What was the total weight of her purchases?

A. 11 lbs

B. 10 lbs

C. 9½ lbs

D. 12 lbs

E. None of these

Add the three fractions to get the total, converting the 8 1/2 to using fourths.

33. Joe Jackson worked 8 hours on Monday, 4 1/4 hours on Tuesday, 6 1/8 hours on Wednesday, 7 1/4 hours on Thursday, and 8 1/8 hours on Friday. Calculate the total number of hours Joe worked for the week.

A. 35

B. 33 1/8

C. 32 3/4

D. 33 3/4

E. None of these

Add the five fraction values to get the total, converting the eighths to fourths.

34.   Cartons of humidifiers are stocked in 25,500 sq. ft. of warehouse space at Home Depot. If each carton requires 4 1/4 sq. ft. of space, how many cartons can be stored in this space?

   A. 60

   B. 600

   C. 6,000

   D. 60,000

   E. None of these

Divide the total square footage by 4 1/4.

35.   At a local Subway, Jill Jones owns 1/4 of the company and Roger Moore owns 1/8. Bill Moore owns the rest. What part is owned by Bill?

   A. 1/4

   B. 1/8

   C. 3/8

   D. 5/8

   E. None of these

Convert 1/4 to 2/8 and add together. Subtract that total [3/8] from 1.

36.   Matt Kaminsky bought a Volvo that is 3 3/4 times as expensive as the car his parents bought. If his parents paid $8,000 for theirs, what is the cost of Matt's car?

A. $26,000

B. $28,000

C. $29,000

D. $30,000

E. None of these

Multiply 8,000 by 3 3/4 to get 30,000.

37. The price of a new Apple iPod has increased by 1/4. If the original price of the Apple was $200, what is the price today?

    A. $150

    B. $250

    C. $200

    D. $175

    E. None of these

Determine what 1/4 of 200 is [50]. Add the 50 to 200 to get 250.

Blooms: Apply
Learning Objective: 02-03 (2) Multiply fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions

38. The price of a Panasonic 3D flat screen television decreased by 1/5. If the original price was $1,500, what is the price today?

    A. $300

    B. $1,200

    C. $1,800

    D. $1,000

    E. None of these

Divide 1,500 by 5, the same as multiplying 1,500 by 1/5, to get 300. Subtract that from 1,500 to get 1,200.

Blooms: Apply
Learning Objective: 02-03 (3) Divide fractions
Level of Difficulty: 2 Intermediate

39.   Lisa Wolf has 20 1/8 days of vacation per year at Walmart. To date she has taken 4 1/2 days in January, 3 1/4 days in February, and 4 1/8 days in March. How much more vacation time is Lisa entitled to?

A.   9 1/4
B.   11 7/8
<u>C.</u>   8 1/4
D.   8 1/2
E.   None of these

Add the three fraction values to get the total time taken, first converting the fourths to eighths. Subtract that value from the total time off allowed to determine the time off remaining.

Blooms: Apply
Learning Objective: 02-03 (1) Add and subtract fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions

40. A machine at Staples photocopies 12 ¼ pages per minute. If the machine runs 700 minutes, how many pages will be photocopied?

    A. 8,750
    B. 7,850
    C. 5,875
    D. 8,575
    E. None of these

    Multiply 700 by 12 to get 8,400. Divide 700 by 4 [the same as multiplying 700 by 1/4] to get 175. 8,400 + 175 equals 8,575.

    Blooms: Apply
    Learning Objective: 02-03 (2) Multiply fractions
    Learning Objective: 02-03 (3) Divide fractions
    Level of Difficulty: 2 Intermediate
    Topic Area: LU 02-03: Basic Math Functions with Fractions

41. Jeff Jones is paid $60 per day at his Job at J.C. Penney. Jeff became ill on Monday and had to leave after 2/5 of a day. What did he earn on Monday? (Assume no work, no pay)

    A. $24
    B. $36
    C. $30
    D. $25
    E. None of these

    Divide 60 by 5 to get 12. Multiply 12 by 2 to get 24.

    Blooms: Apply
    Learning Objective: 02-03 (2) Multiply fractions

42.   The price of a baseball ticket at Yankee Stadium increased by 2 1/4 over the last three years. If the original price of a ticket was $60, what is the price of the ticket today?

   A. $195

   B. $150

   C. $135

   D. $153

   E. None of these

Multiply 60 by 2 to get 120. Divide 60 by 4 to get 15 [this is the same as multiplying 60 by 1/4]. Add the 120 and 15 to get 135.

43. Alice Hall, who loves to cook, makes an apple cake (serves six) for her family. The recipe calls for 2 1/2 pounds of apples, 2 1/4 cups of flour, 1/5 cup of margarine, 1 1/4 cups of sugar, and 4 eggs. Since guests are coming, she would like to make this cake so it will serve 24. How many pounds of apples should she use?

A. 10
B. 15
C. 17 1/2
D. 10 1/4
E. None of these

Since the recipe as is serves six, and 6 needs to be multiplied by 4 to get 24, multiply the 2 1/2 pounds of apples by 4 to get 10. This is the same as multiplying 2 by 4 to get 8 and multiplying 1/2 by 4 to get 2 [four halves is two]. Add the 8 and the 2 to get 10.

Blooms: Apply
Learning Objective: 02-03 (2) Multiply fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions

44.   In a recent, local taste contest testing Coke against Pepsi, it was found that 3/5 of all people surveyed preferred the taste of Coke. If 7,500 people were in the survey, how many chose Pepsi?

        A. 4,500
        B. 5,400
        C. 3,500
        D. 3,000
        E. None of these

        Multiply 7,500 by 3/5; this is the same as dividing 7,500 by 5 to get 1,500 and multiplying 1,500 by 2 to get the remaining 2/5 who preferred Pepsi.

        Blooms: Apply
        Learning Objective: 02-03 (2) Multiply fractions
        Level of Difficulty: 2 Intermediate
        Topic Area: LU 02-03: Basic Math Functions with Fractions

45.   The price of a $200,000 home listed by REMAX was reduced by 1/20. What is the new price?

        A. $180,000
        B. $190,000
        C. $170,000
        D. $160,000
        E. None of these

        Divide 200,000 by 20 to get 10,000 to get one-twentieth. Multiply that by 2 to get 20,000 and subtract 20,000 from 200,000 to get 190,000. This is the same as multiplying 20,000 by 19/20 and using canceling to reduce to 190,000.

        Blooms: Apply

46.   Mia Wong bought a new Bose radio for $280. Bill, a friend of Mia's, can afford to pay only ¾ as much as Mia. What is the most Bill could pay for the radio?

   A. $70
   B. $210
   C. $200
   D. $190
   E. None of these

Multiply 280 by 3/4.

47.   Jane Ring cut a-6ft Subway sandwich into 1 ½-ft sandwiches. How many sandwiches can be cut
        from the 6-ft. sub?

        A. 6
        B. 8
        C. 5
        D. 10
        E. None of these

        Divide 6 by 1 1/2, or 3/2. This is the same as multiplying 6 by 2/3. 6 times 2/3 equals 12/3, which
        reduces to 4.4 is not shown as an answer but is correct.

48.   The price of a Swatch watch increased 1 3/4 times from the price last year. If this year's price is
        $175, what was last year's price?

        A. $75
        B. $100
        C. $60
        D. $90
        E. None of these

        Divide 175 by 1 3/4, which is the same as multiplying 175 by 4/7. That could be written as 175/1
        times 4/7, which equals 700/7. 700 divided by 7 equals 100.

49.   An American Airlines trip from Boston to Los Angeles takes 8 ½ hours. Assuming we are ¼ of the way, how long has the trip taken so far?

A. 1 1/16

B. 7 7/16

C. 2 1/10

D. 6 7/16

E. None of these

Multiply 8 1/2 by 1/4. 8 times 1/4 equals 2. 1/2 times 1/4 equals 1/8. So add those values to get 2 1/8.

50.   Lee Wine bought pizza from Pizza Hut for her son's party. The owner of the store said it would

        feed eight. Assuming six children show up for the party, what part of the pizza remains

        uneaten?

        A. 1/4

        B. 3/4

        C. 1/3

        D. 4/5

        E. None of these

        The eight servings available minus the six servings used equals two remaining servings, or 2/8,

        which can be reduced to 1/4.

51.   The greatest common divisor of 60/216 is:

        A. 2

        B. 12

        C. 10

        D. 5

        E. None of these

        Use the step approach to solve for the greatest common divisor.

52.   The LCD for 3/10, 20/25, and 18/75 is:

A. 5

B. 15

C. 25

D. 7

E. None of these

The LCD is the smallest nonzero whole number into which all denominators will divide evenly.

You can find the LCD by inspection or with prime numbers.

Blooms: Apply
Learning Objective: 02-03 (1) Add and subtract fractions
Level of Difficulty: 1 Basic
Topic Area: LU 02-03: Basic Math Functions with Fractions

53.   Jordan traveled 6/7 of an estimated 1,800-mile trip. How many miles remain in her trip:

A. 154

B. 257

C. 291

D. 400

E. None of these

1,800 × 6/7 = 1541; 1800 - 1543 = 257.

Blooms: Apply
Learning Objective: 02-03 (2) Multiply fractions
Level of Difficulty: 1 Basic
Topic Area: LU 02-03: Basic Math Functions with Fractions

54. The cost of a regular price ticket to a Saint Louis Cardinal baseball game was $60. During the World Series the price increased by 2/5. What did the fans pay?

    A. $65

    B. $69

    C. $80

    D. $84

    E. None of these

$60 × 2/5 = $24; $60 + $24 = $84.

55. The average number of students for Professor Shannon's finance class was 20. During the fall semester there was an increase of 3/5 in students. How many students are registered for his class in the fall?

    A. 32

    B. 24

    C. 30

    D. 26

    E. None of these

20 × 3/5 = 12; 12 + 20 = 32.

Matching Questions

56.   Match the following terms with their definitions.

1. Cancellation.	Reducing process.	<u>1</u>
2. Fraction.	Bottom part of fraction.	<u>7</u>
3. Proper fractions.	Expresses a part of a whole number.	<u>2</u>
4. Numerator.	Largest possible number.	<u>11</u>
5. Prime numbers.	Equivalent to the original.	<u>13</u>
6. Reciprocal.	Numerator is equal to or greater than the denominator.	<u>9</u>
7. Denominator.	Smallest whole number.	<u>8</u>
8. Least common denominator (LCD).	No number divides evenly except 1 into numerator.	<u>10</u>
9. Improper fraction.	Whole number and a proper fraction.	<u>12</u>
10. Lowest terms.	Top of fraction.	<u>4</u>
11. Greatest common divisor.	Number divisible by itself and 1.	<u>5</u>
12. Mixed numbers.	Numerator less than denominator.	<u>3</u>
13. Higher terms.	Interchanging denominator and numerator.	<u>6</u>

Short Answer Questions

57.   Indicate type of fraction:

3 4/7

Mixed

Feedback: This fraction has both a whole number and a fraction. The fraction cannot be reduced further.

Blooms: Understand
Learning Objective: 02-01 (1) Recognize the three types of fractions
Level of Difficulty: 1 Basic
Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

58.   Indicate type of fraction:

6/7

Proper

Feedback: This fraction does not have a whole number and has a numerator that is smaller than the denominator and cannot be reduced further.

Blooms: Understand
Learning Objective: 02-01 (1) Recognize the three types of fractions
Level of Difficulty: 1 Basic

59. Indicate type of fraction:

    10/9

    Improper

    Feedback: This fraction does not have a whole number but does have a numerator that is larger than the denominator and cannot be reduced further.

    Blooms: Understand
    Learning Objective: 02-01 (1) Recognize the three types of fractions
    Level of Difficulty: 1 Basic
    Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

60. Convert to a mixed number:

    89/6

    14 5/6

    Feedback: 6 goes into 89 fourteen times with 5 left over.

    Blooms: Understand
    Learning Objective: 02-01 (2) Convert improper fractions to whole or mixed numbers and mixed numbers to improper fractions
    Level of Difficulty: 2 Intermediate
    Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

61. Convert to an improper fraction:

14 1/8

113/8

Feedback: 8 times 14 plus 1 equals 113.

62. A. Find greatest common divisor and B. Convert to lowest terms. For (A) use the step approach or the observation method:

18/66

A. _____ B. _____

A. 6; B. 3/11

Feedback: A. The largest number that goes into both 18 and 66 is 6. B. Using the step approach, 18 goes evenly into 66 three times to equal 54, leaving a remainder of 12. 12 goes into 18 one time, leaving a remainder of 6.

63. Convert to higher terms:

8/9 = 96/?

108

Feedback: Divide 96 by 8 to get 12. Multiply 9 by 12 to get 108, which is the answer.

64. Add (reduce to lowest terms):

6/15 + 2/15

8/15

Feedback: Since there are common denominators, you only need to add 6 and 2 to get 8. 8/15 cannot be reduced further.

65.   Add (Reduce to lowest terms):

1/7 + 5/14

7/14 = 1/2

Feedback: Multiply 1/7 by 2/2 and add the fractions to get 7/14, which can then be reduced to 1/2.

Blooms: Apply
Learning Objective: 02-03 (1) Add and subtract fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions

66.   Find LCD by using prime numbers (show work):

1/8 + 1/4 + 1/3 + 1/6

24

Feedback: List the denominators in a row, sorted left to right, then break each number down to its prime values by dividing by 2, carrying down any numbers that cannot divide evenly.

Blooms: Apply
Learning Objective: 02-03 (1) Add and subtract fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions

67. Subtract (reduce to lowest terms if necessary):

13 1/7 - 5 5/21

7 19/21

Feedback: Convert 13 1/7 and 5 5/21 to improper fractions, then find the lowest common denominator [21] and subtract. Convert the answer to a mixed fraction.

68. Multiply (cancel as needed):

11 3/8 × 6 6/7

78

Feedback: Before multiplying, remember to convert the mixed fractions into improper fractions.

69.   At Victor's grocery, each case of Cheerios takes up 3 1/2 square feet. If Victor sets aside 6,930 square feet, how many cases of Cheerios can Victor store?

1,980

Feedback: Divide 6,930 by 3 1/2, which is the same as multiplying 6,930 by 2/7.

Blooms: Apply
Learning Objective: 02-03 (3) Divide fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions

70.   On a plane trip to Hawaii, the baggage weight projected was 2,182 1/4 lbs. The actual weight of all bags totaled 2,095 1/3 lbs. By how much was the projected weight overstated?

86 11/12 lbs.

Feedback: After converting the fractions to have 12 as a common denominator, subtract the actual from the projected baggage weight.

Blooms: Apply
Learning Objective: 02-03 (1) Add and subtract fractions
Level of Difficulty: 3 Challenge
Topic Area: LU 02-03: Basic Math Functions with Fractions

71. Acme Track Incorporated received 360 pairs of Nike running shoes. Each pair sells for $58. Acme found 1/9 of the pairs to be defective and returned them. Assuming each pair cost Acme $26, what profit did Acme make assuming all nondefective sneakers were sold?

$10,240

Feedback: Find the difference between the sale price and the cost [$32]. Divide 360 by 9 to get 40 and subtract the 40 pairs of defective shoes from the 360. Take this value of 320 and multiply it by $32 to get the answer. [This is the same as squaring 32 and attaching a zero!]

Blooms: Apply
Learning Objective: 02-03 (2) Multiply fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions

72. Last year's sales at Mel's cinema totaled $144,600. This year's sales should increase by 1/3. How much should sales increase by, and what will sales be in the new year?

$48,200; $192,800

Feedback: Multiply the sales total by 1/3 to get the increase in sales and then add that increase back to the current sales total to get the next year's total.

Blooms: Apply
Learning Objective: 02-03 (2) Multiply fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions

73.   Indicate type of fraction:

3 ¾

Mixed

Feedback: This fraction has both a whole number and a fraction. The fraction cannot be reduced further.

74.   Indicate type of fraction:

5/6

Proper

Feedback: This fraction does not have a whole number and has a numerator that is smaller than the denominator and cannot be reduced further.

75. Indicate type of fraction:

10/9

Improper

Feedback: This fraction does not have a whole number but does have a numerator that is larger than the denominator and cannot be reduced further.

76. Convert to a mixed number:

113/6

$$18\frac{5}{6} \quad 6\overline{)113}\,\mathrm{Re}\,m5 \quad \frac{18}{}$$

Feedback: 6 goes into 113 eighteen times with a remainder of 5.

77. Convert to an improper fraction:

9 1/8

$$\frac{73}{8} \qquad \frac{72 + 1}{8}$$

Feedback: 9 times 8 plus 1 equals 73. Show the 73 as the new denominator over the 8.

78. Calculate greatest common divisor by step approach and reduce to lowest terms:

180/440

$$20 \qquad \frac{9}{22}$$

$$\frac{180 \div 20}{440 \div 20} = \frac{9}{22}$$

Feedback: Use the step approach to determine that 20 is the greatest common divisor. Divide both the numerator and the denominator by 20 to show the fraction in lowest terms.

79.   Convert to higher terms:

7/19 = ?/114

114 ÷ 19 = 6; 6 × 7 = 42

Feedback: Divide 14 by 19 to get 6. Multiply the numerator of 7 by 6 to get 42.

80.   Find LCD by using prime numbers (show work):

1/2 + 1/6 + 1/8 + 1/4

```
2 | 2    6    8    4
2 | 1    3    4    2
    1    3    2    1
  2 x 2 x 1 x 3 x 2 x 1 = 24
```

Feedback: Remember to list the denominator in a sorted row before dividing each number by 2 and carrying down those which have remainders.

81.   5/9 ÷ 5 =

$$\frac{\overset{1}{\cancel{5}}}{9} \times \frac{1}{\underset{1}{\cancel{5}}} = \frac{1}{9}$$

Feedback: Use canceling to reduce the 5's in the numerator and denominator to 1's to get an answer of 1/9.

82.   At Flynn Manufacturing, 30 ¼ rolls of tape are made each hour on a new high-speed machine. If the machine runs 12 hours, how many rolls of tape will be produced?

$$30\tfrac{1}{4} \times 12 = \frac{121}{\underset{1}{\cancel{4}}} \times \overset{3}{\cancel{12}} = 363 \text{ rolls of tape}$$

Feedback: Use canceling to multiply 30 1/4 by 12. Convert the mixed fraction into an improper fraction and reduce the 12's in the numerator and denominator to 1's to get an answer of 363, which is 12 times 3.

83.   At Kentucky Fried chicken, a survey showed 2/3 of all people preferred skinless chicken over the regular chicken. If 2,400 people responded to the survey, how many preferred regular chicken?

$$\frac{1}{3} \times 2,400 = 800$$

Feedback: 2/3 preferred skinless, leaving 1/3 to prefer regular. Multiply 2,400 by 1/3, which is the same as dividing 2,400 by 3, to get 800 as the answer.

84.   At United Airlines, Pete Roy worked 8 3/4 hours on Monday, 4 1/2 hours on Tuesday, 9 1/4 hours on Wednesday, 10 1/2 hours on Thursday, and 7 hours on Friday. How many total hours did Pete work during the week?

$$8\frac{3}{4} + 4\frac{2}{4} + 9\frac{1}{4} + 10\frac{2}{4} + 7 = 38\frac{8}{4} = 40 \text{ hours}$$

Feedback: Covert all the denominators into common values and add the mixed fractions to get 38 8/4. 8/4 equals 2, so add that to 38 to get a total answer of 40.

85.	The Red Sox announced that the price of their $50 bleacher seats will increase next year by 1/5. What will be the new ticket price?

$$\$50 \times 1\frac{1}{5} = \frac{\$50}{1} \times \frac{6}{5} = \frac{300}{5} = \$60$$

Feedback: Stating that the price will increase by 1/5 means that the next year's price will be 1 1/5 of this year's price. Multiply $50 by 1 1/5, or 6/5, and use canceling to get a final answer of $60. Check your answer by dividing the original price, $50, by 5 to get $10. Add that 1/5, or 10, back to the $50 to get $60.

86.	Indicate type of fraction:
	3 1/8

	Mixed

	Feedback: This fraction has both a whole number and a fraction. The fraction cannot be reduced further.

87.   Indicate type of fraction:

6/7

Proper

Feedback: This fraction does not have a whole number and has a numerator that is smaller than the denominator and cannot be reduced further.

88.   Indicate type of fraction:

12/11

Improper

Feedback: This fraction does not have a whole number but does have a numerator that is larger than the denominator and cannot be reduced further.

89.   Indicate type of fraction:

5/6

Proper

Feedback: This fraction does not have a whole number and has a numerator that is smaller than the denominator and cannot be reduced further.

Blooms: Understand
Learning Objective: 02-01 (1) Recognize the three types of fractions
Level of Difficulty: 1 Basic
Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

90.   Indicate type of fraction:

15/14

Improper

Feedback: This fraction does not have a whole number but does have a numerator that is larger than the denominator and cannot be reduced further.

Blooms: Understand
Learning Objective: 02-01 (1) Recognize the three types of fractions
Level of Difficulty: 1 Basic
Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

91.   Indicate type of fraction:

12 9/10

Mixed

Feedback: This fraction has both a whole number and a fraction. The fraction cannot be reduced further.

92.   Convert to a mixed number:

88/7

12 4/7

Feedback: 7 goes into 88 twelve times with 4 left over.

93.   Convert to a mixed number:

   77/3

   25 2/3

   Feedback: 25 goes into 77 three times with 2 left over.

94.   Convert to an improper faction:

   12 1/7

   85/7

   Feedback: 12 times 7 plus 1 equals 85. Show 85 over 7 as the final answer.

95. A. Find greatest common divisor and B. Convert to lowest terms. For (A) use the step approach or the observation method:

90/320

A. 10   B. $\dfrac{9}{32}$

$$\dfrac{90 \div 10}{320 \div 10} = \dfrac{9}{32}$$

$$90\overline{)320} \quad 50\overline{)90} \quad 40\overline{)50} \quad 10\overline{)40}$$

with quotients 3, 1, 1, 4 and remainders:

90)320 → 270, 50
50)90 → 50, 40
40)50 → 40, 10
10)40 → 40

Feedback: Using the step approach, 10 is the greatest common divisor. Dividing both 90 and 320 by 10 equals 9/32, which cannot be reduced further.

Blooms: Apply
Learning Objective: 02-01 (3) Convert fractions to lowest and highest terms
Level of Difficulty: 3 Challenge
Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

96. Convert to an improper fraction:

11 1/9

100/9

Feedback: 9 times 11 plus 1 equals 100. Show 100 over 9 as the final answer and leave as an improper fraction.

Blooms: Apply
Learning Objective: 02-01 (2) Convert improper fractions to whole or mixed numbers and mixed numbers to improper fractions
Level of Difficulty: 1 Basic
Topic Area: LU 02-01: Types of Fractions and Conversion Procedures

97. A. Find greatest common divisor and B. Convert to lowest terms. For (A) use the step approach or the observation method.

12/96

$$\text{A. } 12 \qquad \text{B. } \frac{1}{8} \qquad 12\overline{)96}^{\,8}$$
$$\underline{96}$$

Feedback: Using the step approach, 12 is the greatest common divisor. Dividing 12/96 by 12 equals 1/8, which cannot be reduced further.

98. 8/9 = 72/?

$$\frac{78}{81}$$
$$\frac{8}{9} = \frac{72}{81}$$

The 72 is 9 x 8 = 72

9 x 9 = 81

Feedback: Divide the numerator 72 by the other numerator, 8; this equals 9. Multiply the denominator 9 by 9 to get the missing denominator of 81.

99.   3/4 = 36/?

36/48

Feedback: Divide the numerator 36 by the other numerator, 3, to get 12. Multiply the denominator 4 by 12 to get the missing denominator 48.

100.   Add (reduce to lowest terms):
        4/15 + 1/15

1/3; 5/15 = 1/3

Feedback: Adding the fractions 4/15 and 1/15 equals 5/15. This can be reduced to 1/3.

101.   Add (reduce to lowest terms):

2/7 + 3/14

1/2; 4/14 + 3/14 = 7/14 = 1/2

Feedback: Using 14 as the common denominator, multiply 2/7 times 2 to get 4/14. Add this to 3/14 to get a final answer of 7/14, which can be reduced to 1/2.

Blooms: Apply
Learning Objective: 02-03 (1) Add and subtract fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions

102.   Add (reduce to lowest terms):

3/7 + 1/21

10/21

Feedback: Multiply 3/7 by 3/3 to get to a common denominator fraction of 9/21. Add this to 1/21 to get a final answer of 10/21, which cannot be reduced further.

Blooms: Apply
Learning Objective: 02-03 (1) Add and subtract fractions
Level of Difficulty: 1 Basic
Topic Area: LU 02-03: Basic Math Functions with Fractions

103.   Add (reduce to lowest terms):

4/7 + 13/14

1 1/2

Feedback: Multiply 4/7 by 2/2 to get a common denominator fraction of 8/14. Add this to 13/14 to get 21/14, which can be converted to a mixed fraction of 1 7/14, or 1 1/2.

104.   Find LCD by using prime numbers (show work):

1/2 + 1/5 + 1/4 + 1/20

20

2	2	5	4	20	
2	1	5	2	10	
5	1	5	1	5	$2 \times 2 \times 5 = 20$
	1	1	1	1	

Feedback: Remember to list the denominator in a sorted row before dividing each number by 2 and carrying down those which have remainders.

105.   Find LCD by using prime numbers (show work):

1/3 + 1/4 + 1/6 + 1/8

```
24   2  | 3  4  6  8
     2  | 3  2  3  4
     3  | 3  1  3  2
           1  1  1  2
```

Feedback: Remember to list the denominator in a sorted row before dividing each number by 2 and carrying down those which have remainders.

106.   Subtract (reduce to lowest terms if necessary):

$$
\begin{array}{r}
12\ 1/8 \\
-\ 9\ 2/3 \\
\hline
\end{array}
$$

$$2\frac{11}{24}$$

$$
\begin{array}{r}
12\dfrac{3}{24} \\
-9\dfrac{16}{24} \\
\hline
\end{array}
\qquad
\begin{array}{r}
11\dfrac{27}{24} \\
-9\dfrac{16}{24} \\
\hline
\end{array}
$$

Feedback: First find the common denominator for 1/8 and 2/3, which is 24. After converting 1/8 to 3/24 and 2/3 to 16/24, adjust the mixed fraction 12 3/24 to 11 27/24 by moving one unit, 24/24, from the whole number to the fraction. Now subtract 9 16/24 from 11 27/24 to get 2 11/24, which cannot be reduced further.

Blooms: Apply
Learning Objective: 02-03 (1) Add and subtract fractions
Level of Difficulty: 3 Challenge
Topic Area: LU 02-03: Basic Math Functions with Fractions

107.   Subtract (reduce to lowest terms if necessary):

14 1/4
-3 3/4
_____

$$10\frac{1}{2}\left(13\frac{5}{4}-3\frac{3}{4}\right)$$

Feedback: Before you can subtract you have to make 1/4 larger than 3/4, so move one unit [4/4] from the whole number to the fraction in the minuend [the larger fraction on top] to get 13 5/4. Now subtract the 3 3/4 to get 10 2/4, which can be reduced to 10 1/2.

108.   Multiply (cancel as needed and express final answer as a mixed number):

12 3/8 × 7 1/6

$$88\frac{11}{16};\ 12\frac{3}{8}\times7\frac{1}{6}=\frac{\overset{33}{\cancel{99}}}{8}\times\frac{43}{\underset{2}{\cancel{6}}}=\frac{1,419}{16}$$

Feedback: Convert both mixed fractions to improper fractions before using canceling to multiply. Then you'll get 33/8 times 43/2, which equals 1419/16 as an improper fraction.

109. John Morse worked 8 1/2 hours on Monday, 2 3/4 hours on Tuesday, 7 1/2 hours on Wednesday, 7 1/4 hours on Thursday, and 8 hours on Friday. Calculate the total number of hours John worked for the week.

$$34 \text{ hours}; \quad 8\frac{2}{4} + 2\frac{3}{4} + 7\frac{2}{4} + 7\frac{1}{4} + 8$$

Feedback: Add the four fraction values to get the total time worked, first converting the 1/2's to fourths. Add the total time worked.

110. Al, Ronda, and Rony enter into a partnership. Al owns 1/4 of the company, and Ronda owns 1/8. Calculate the part that is owned by Rony.

$$5/8 \text{ for Rony}; \quad \frac{2}{8} + \frac{1}{8} = \frac{3}{8}; \quad 1 - \frac{3}{8}$$

Feedback: Convert 1/4 to eighths. Add the fractions together to get 3/8 and subtract that from 1 to get the remaining partnership of 5/8.

111.   Hilton Hotels announced a price decrease of 1/10 from its $290 weekend package. What is the new weekend package rate?

$$\$261 \quad \left(\$290 \times \frac{9}{10}\right)$$

Feedback: Since you are trying to find the new rate after the decrease, multiply $290 by 9/10.

112.   Bill Murray has 16 3/4 days of vacation per year. To date, he has taken 1 3/4 days in January, 4 2/3 days in February, and 2 1/6 days in March. How much more vacation time is Bill entitled to?

$$8 \text{ 1/6 days remain } 1\frac{9}{12} + 4\frac{8}{12} + 2\frac{2}{12} = 7\frac{19}{12} = 8\frac{7}{12}; \quad 16\frac{9}{12} - 8\frac{7}{12} = 8\frac{2}{12}$$

Feedback: After converting the fractions to have a common denominator, which is 12, add the values. This will get you an improper mixed fraction that has to be converted by moving 12/12 from the fraction to the whole number, changing the sum from 7 19/12 to 8 7/12. Take this value from the time allowed to get 8 2/12, or 8 1/6. Add the total time worked.

113.   A trip to New York from Boston will take 4 1/2 hours. Assuming we are two-thirds of the way there, how much longer will the trip take?

$$1 \frac{1}{2} \text{ hours } \quad \frac{1}{3} \times \frac{9}{2} = \frac{9}{6} = 1\frac{3}{6}$$

Feedback: Since you are trying to find the amount of time left to travel, multiply 4 1/2 by 1/3 instead of 2/3 to get the answer.

114.   The price of a new car increased by 2/3 over the last five years. If the original price of the car was $6,000, what is the price today?

$$\$10,000 \quad 1\frac{2}{3} \times \$6,000 = \frac{5}{3} \times \$6,000$$

Feedback: The new car price is the original price plus the increase, so multiply the $6,000 by 1 2/3, not just 2/3, to get the final new total price of $10,000.

115. Mel Corp. produces 18¼ widgets each hour. If the machine runs 16 hours, how many widgets will be produced?

$$292 \left(\frac{73}{4} \times 16 \right)$$

Feedback: Convert the 18 1/4 into an improper fraction before multiplying by 16 to get a final answer of 292.

116. Cans of soup are stocked in 1,250 sq. ft. of warehouse space. If each can requires 2 1/2 sq. ft. of space, how many cans of soup can be stored in this space?

$$500 \text{ cans} \left(1250 \div \frac{5}{2} = 1,250 \times \frac{2}{5} = \frac{2,500}{5} \right)$$

Feedback: Convert the 2 1/2 into an improper fraction before dividing the total square footage by 5/2. This is the same as multiplying 2/5.

117. John Rone bought a home that is 5 1/2 times as expensive as the home his parents bought. If his parents paid $35,000 for theirs, what is the cost of Rone's home?

$$\$192,500 \left(\frac{11}{2} \times \$35,000 \right)$$

Feedback: Convert the 5 1/2 into an improper fraction [11/2] and then multiply by the parents' home's price of $35,000.

118. In a recent taste testing survey, it was found that 5/7 of all people surveyed preferred the taste of "A" chicken over "B" chicken. If 3,500 people were in the survey, how many favored "A"? What is the number of people who chose "B"?

A. $\dfrac{5}{7} \times 3{,}500 = 2{,}500$

B. $\dfrac{2}{7} \times 3{,}500 = 1{,}000$

Feedback: Multiply the number of people surveyed by 5/7 and then by 2/7 to get 2,500 and 1,000, respectively. This is a way to check the answer as the two answers should add back up to 3,500.

119.   Convert to an improper fraction:

16 3/8

131/8

Feedback: 16 × 8 = 128; 128 + 3 = 131/8.

120.   Indicate what type of fraction:

12 4/7

Mixed

Feedback: The mixed fraction contains a whole number and a proper fraction.

121. Complete:

10 1/8 divided by 3/8

10 1/8/3/8 = 81/8/3/8 = 81/8 × 8/3 = 27

Feedback: Convert the mixed fraction to an improper fraction; invert divisor and multiply.

Blooms: Apply
Learning Objective: 02-03 (3) Divide fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions

122. At Truman Middle School 2/3 of the girls preferred playing capture the flag at gym. If 600 girls responded to the survey, how many preferred playing something else?

2/3 × 600 = 1.200/3 = 400

Feedback: Multiply 2 times the 600 respondents and then divide by 3.

Blooms: Apply
Learning Objective: 02-03 (2) Multiply fractions
Level of Difficulty: 3 Challenge
Topic Area: LU 02-03: Basic Math Functions with Fractions

123.   Reduce the following to the lowest terms:

162/567

162/567 divided by 81/81 = 2/7

Feedback: Use the step dividing the smaller number (numerator) of the fraction into the larger number (denominator).

Blooms: Apply
Learning Objective: 02-03 (1) Add and subtract fractions
Level of Difficulty: 2 Intermediate
Topic Area: LU 02-03: Basic Math Functions with Fractions