

# **Math Connections Worksheets**

MAT0018C Developmental Math I

## **Chapter 4**

Fractions and Mixed Numbers



### 4.1 Introduction to Fractions and Mixed Numbers

Label the numerator and the denominator in the following fractions

1.  $\frac{11}{19}$

3.  $\frac{1}{50}$

2.  $\frac{21}{13}$

4.  $\frac{7}{2}$

5. Write a fraction with a numerator of 51
6. Write a fraction with a denominator of 12
7. Write a fraction with a numerator of 17 and a denominator of 11

Write a fraction to represent the situation

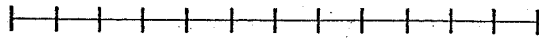
8. Write a fraction that represents how many of the cats are happy?



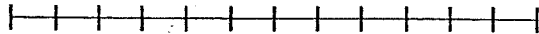
9. In a group of 9 pets, 4 are cats. Write a fraction to represent this.

Using the number line below, graph the following numbers

10.  $0, \frac{4}{5}, 1, -2, \frac{1}{3}, -3$



11.  $0, \frac{7}{3}, \frac{9}{4}, 3$



Convert the following into a mixed number

12.  $\frac{7}{5}$

13.  $\frac{11}{2}$

Convert the following into an improper fraction

14.  $3\frac{2}{5}$

15.  $1\frac{1}{7}$

## 4.2 Factors and Simplest Form

**Write the prime factorization of each number**

16. 12

19. 75

17. 36

20. 125

18. 60

21. 144

**Reduce the following fractions to lowest terms**

22.  $\frac{14}{2}$

25.  $\frac{25}{35}$

23.  $\frac{60a}{48a}$

26.  $\frac{72}{80}$

24.  $\frac{16}{12}$

27.  $\frac{75}{15}$

**Determine if the following fractions are equivalent**

28.  $\frac{2}{6}, \frac{3}{9}$

31.  $\frac{40}{16}, \frac{15}{6}$

29.  $\frac{12}{15}, \frac{15}{20}$

32.  $\frac{10}{12}, \frac{22}{24}$

30.  $\frac{8}{12}, \frac{10}{15}$

33.  $\frac{6}{18}, \frac{11}{33}$

### 4.3 Multiplying and Dividing Fractions

#### Multiplying and Simplify to lowest terms

34.  $\frac{4}{5} \cdot \frac{3}{5}$

38.  $\frac{12}{5} \cdot \frac{25}{4}$

35.  $\frac{3}{7} \cdot \frac{2}{5}$

39.  $\frac{21}{25} \cdot \frac{5}{49}$

36.  $\frac{3}{2} \cdot \frac{5}{4}$

40.  $\frac{9}{4} \cdot \frac{7}{15}$

37.  $\frac{1}{6} \cdot \frac{2}{7}$

41.  $\frac{9}{5} \cdot \frac{5}{3}$

#### Simplify the following expressions

42.  $\left(\frac{1}{3}\right)^3$

44.  $\left(\frac{2}{3}\right)^3 \cdot \frac{3}{4}$

43.  $\left(-\frac{7}{8}\right)^2$

45.  $\left(-\frac{1}{4}\right)^2 \cdot \frac{4}{5}$

#### Divide and Simplify to lowest terms

46.  $\frac{4}{5} \div \frac{3}{7}$

48.  $\frac{1}{2} \div \frac{3}{4}$

47.  $-\frac{4}{9} \div \left(-\frac{6}{4}\right)$

49.  $-\frac{16}{27} \div \frac{8}{9}$

#### Simplify the following expressions

50.  $\left(1 \div \frac{2}{5}\right) \cdot \frac{8}{15}$

52.  $\frac{9}{8} \div \frac{2}{3} \cdot \frac{4}{3}$

51.  $\left(\frac{24}{25} \div \frac{3}{5}\right) \cdot \frac{5}{8}$

53.  $\left(-\frac{2}{5} \div \frac{4}{15}\right)^3 \cdot \frac{1}{3}$

### 4.4 Adding and Subtracting Like Fractions, Least Common Denominator and Equivalent Fractions

Perform the indicated operation then Simplify if possible

$$54. \frac{4}{5} + \frac{3}{5}$$

$$58. \frac{3}{2y} - \left(-\frac{6}{2y}\right)$$

$$55. \frac{5x}{6} - \frac{2}{6}$$

$$59. -\frac{8}{25} - \left(-\frac{10}{25}\right)$$

$$56. -\frac{9}{10} + \frac{14}{10}$$

$$60. \frac{9}{8} + \frac{7}{8} - \frac{1}{8} + \frac{4}{8}$$

$$57. -\frac{6}{20} + \left(-\frac{4}{20}\right)$$

$$61. \frac{3a}{4} + \frac{a}{4} - \frac{3a}{4} - \frac{2a}{4}$$

Find the perimeter

$$62. \begin{array}{|c|} \hline \frac{5}{3}k \\ \hline \end{array} \begin{array}{|c|} \hline \frac{2}{3}k \\ \hline \end{array}$$

$$63. \begin{array}{c} \frac{3}{5}\text{ in} \\ \diagdown \\ \frac{1}{5}\text{ in} \quad \frac{2}{5}\text{ in} \end{array}$$

Find the Least Common Denominator of the list of fractions

$$64. \frac{5}{9}, \frac{4}{6}$$

$$67. \frac{3}{8}, \frac{5}{16}$$

$$65. \frac{2}{12}, \frac{5}{60}$$

$$68. \frac{9}{14}, \frac{3}{28}, \frac{4}{7}$$

$$66. \frac{3}{4}, \frac{1}{18}$$

$$69. \frac{1}{9}, \frac{2}{6}, \frac{5}{18}$$

Write an equivalent fraction with the given denominator

$$70. \frac{2}{3} = \frac{\quad}{27}$$

$$72. \frac{3}{12} = \frac{\quad}{60}$$

$$71. \frac{5}{14} = \frac{\quad}{28}$$

$$73. \frac{5a}{2} = \frac{\quad}{72}$$

**4.5 Adding and Subtracting Unlike Fractions**

Perform the indicated operation then Simplify if possible

74.  $\frac{5}{14} + \frac{8}{21}$

81.  $\frac{3x}{5} + \frac{7}{4}$

75.  $\frac{3}{4} - \frac{3}{8}$

82.  $\frac{3}{x} + \frac{4}{7}$

76.  $-\frac{2}{9} - \frac{5}{6}$

83.  $-\frac{12}{5} + \frac{4}{10}$

77.  $\frac{7}{12} - \left(-\frac{7}{8}\right)$

84.  $\frac{3}{4} + \frac{5}{8} + \frac{1}{16}$

78.  $-3 - \frac{3}{4}$

85.  $\frac{4}{5} - \frac{3}{4} + \frac{7}{10}$

79.  $\frac{3}{5} + \frac{4}{7}$

86.  $-\frac{2}{3} + \frac{5}{6} + \frac{3}{4}$

80.  $\frac{9}{10} + \frac{2}{5}$

87.  $\frac{3x}{8} - \frac{2x}{5} - \frac{3}{10}$

## 4.6 Complex Fractions and Review of the Order of Operations

**Simplify using the Order of Operations**

$$88. \frac{7}{10} + \frac{3}{5} \cdot \frac{1}{2}$$

$$91. \left(\frac{2}{3} - \frac{3}{4}\right) \div \left(\frac{3}{4} + \frac{2}{3}\right)$$

$$89. \frac{3}{4} - \frac{2}{3} \div \frac{6}{7}$$

$$92. \left(\frac{1}{4} - \frac{5}{8}\right)^2$$

$$90. \left(\frac{1}{3}\right)^2 - \frac{3}{5}$$

$$93. \frac{3}{10} + \frac{2}{5} \cdot \frac{10}{4}$$

**Simplify Complex Fractions**

$$94. \frac{\frac{1}{4} + \frac{1}{4}}{\frac{2}{5} - \frac{1}{5}}$$

$$96. \frac{\frac{3}{4} - \frac{1}{4}}{\frac{2}{5} + \frac{1}{2}}$$

$$95. \frac{\frac{2}{5} + \frac{2}{3}}{12}$$

$$97. \frac{\frac{1}{5} + 3}{\frac{1}{2} + \frac{1}{8}}$$

## 4.7 Operations on Mixed Numbers

**Addition and Subtraction of Mixed Numbers (Reduce if possible)**

$$98. 1\frac{2}{3} + 2\frac{2}{3}$$

$$101. 3\frac{1}{4} + \frac{1}{2}$$

$$99. 4\frac{5}{8} - 2\frac{3}{10}$$

$$102. \frac{3}{5} - 2\frac{4}{5}$$

$$100. 7\frac{2}{3} - 5\frac{1}{3}$$

$$103. 6\frac{7}{8} - 10\frac{3}{4}$$



**4.8 Solving Equations Containing Fractions****Solve**

104.  $d + \frac{2}{3} = \frac{1}{3}$

105.  $e - \frac{1}{6} = \frac{3}{8}$

106.  $10w + \frac{5}{8} - 9w = \frac{9}{12}$

107.  $15a + \frac{5}{14} = 16a - \frac{16}{21}$

108.  $\frac{2}{3}f = \frac{3}{5}$

109.  $\frac{4}{9}t = \frac{-8}{15}$

110.  $\frac{4}{-11}q = 5$

111.  $3h = \frac{4}{5}$

112.  $20k - 17k = \frac{2}{3}$

113.  $\frac{9}{8}j = \frac{7}{5} - \frac{4}{5}$

## Chapter 4

5.  $\frac{51}{4}$

6.  $\frac{1}{12}$

7.  $\frac{17}{11}$

8.  $\frac{5}{8}$

9.  $\frac{4}{9}$

12.  $1\frac{2}{5}$

13.  $5\frac{1}{2}$

14.  $\frac{17}{5}$

15.  $\frac{8}{7}$

16.  $2 \cdot 2 \cdot 3$

17.  $2 \cdot 2 \cdot 3 \cdot 3$

18.  $2 \cdot 2 \cdot 3 \cdot 5$

19.  $3 \cdot 5 \cdot 5$

20.  $5 \cdot 5 \cdot 5$

21.  $2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3$

22. 7

23.  $\frac{5}{4}$

24.  $\frac{4}{3}$

25.  $\frac{5}{7}$

26.  $\frac{9}{10}$

27. 5

28. *yes*29. *no*30. *yes*31. *yes*32. *no*33. *yes*

34.  $\frac{12}{25}$

35.  $\frac{6}{35}$

36.  $\frac{15}{8}$

37.  $\frac{1}{21}$

38.  $\frac{15}{8}$

39.  $\frac{3}{35}$

40.  $\frac{21}{20}$

41. 3

42.  $\frac{1}{27}$

43.  $\frac{49}{64}$

44.  $\frac{2}{9}$

45.  $\frac{1}{20}$

46.  $\frac{28}{15}$

47.  $\frac{8}{27}$

48.  $\frac{2}{3}$

49.  $-\frac{2}{3}$

50.  $\frac{4}{3}$

51.  $\frac{1}{9}$

52.  $\frac{9}{4}$

53.  $-\frac{9}{8}$

54.  $\frac{7}{5}$

55.  $\frac{5x-2}{6}$

56.  $\frac{1}{2}$

57.  $-\frac{1}{2}$

58.  $\frac{9}{2y}$

59.  $\frac{2}{25}$

60.  $\frac{19}{8}$

61.  $\frac{-a}{4}$

62.  $\frac{14}{3} ft$

63.  $\frac{6}{5} in$

64. 18

65. 60

66. 36

67. 16

68. 28

69. 18

70.  $\frac{18}{27}$

71.  $\frac{10}{28}$

72.  $\frac{15}{60}$

73.  $\frac{180a}{72}$

74.  $\frac{31}{42}$

75.  $\frac{3}{8}$

76.  $-\frac{19}{18}$

77.  $\frac{35}{24}$

78.  $-\frac{15}{4}$

79.  $\frac{41}{35}$

## Chapter 4

80.  $\frac{13}{10}$

81.  $\frac{12x+35}{20}$

82.  $\frac{4x+21}{7x}$

83.  $-\frac{2}{23}$

84.  $\frac{16}{3}$

85.  $\frac{4}{11}$

86.  $\frac{11}{12}$

87.  $\frac{-x-12}{40}$

88.  $1$

89.  $-\frac{1}{36}$

90.  $-\frac{22}{45}$

91.  $-\frac{1}{17}$

92.  $\frac{9}{64}$

93.  $\frac{13}{10}$

94.  $\frac{5}{2}$

95.  $\frac{4}{45}$

96.  $\frac{5}{9}$

97.  $\frac{128}{25}$

98.  $4\frac{1}{3}$

99.  $2\frac{1}{4}$

100.  $2\frac{1}{3}$

101.  $3\frac{3}{4}$

102.  $-2\frac{1}{5}$

103.  $-3\frac{7}{8}$

104.  $d = -\frac{1}{3}$

105.  $e = \frac{13}{24}$

106.  $w = \frac{1}{8}$

107.  $a = \frac{47}{42}$

108.  $f = \frac{9}{10}$

109.  $t = -\frac{6}{5}$

110.  $q = \frac{-55}{4}$

111.  $h = \frac{4}{15}$

112.  $k = \frac{2}{9}$

113.  $j = \frac{8}{15}$