FUNDAMENTALS AND ALGEBRA
MAT 0012C Practice Exam **Name**_____

Multiple Choice Directions: Choose the one best answer for each item.

1. Find the difference between 5 and -16.
   a) -11 b) 11 c) -21 d) 21

2. Simplify: $1-7\cdot(1-3)^2$
   a) 13 b) -55 c) 24 d) -27

3. Simplify: $12\div 4-(-2)^2$
   a) -1 b) 7 c) 25 d) 0

4. Write $\frac{18}{5}$ as a mixed number or a whole number.
   a) $3\frac{2}{5}$ b) $4\frac{2}{5}$ c) 3 d) $3\frac{3}{5}$

5. Write $3\frac{4}{7}$ as an improper fraction.
   a) $\frac{19}{7}$ b) $\frac{24}{7}$ c) $\frac{25}{7}$ d) $\frac{32}{7}$

6. Write $\frac{14}{21}$ in simplest form.
   a) $\frac{4}{7}$ b) $\frac{3}{2}$ c) $\frac{2}{3}$ d) $\frac{5}{7}$

7. Add: $\frac{1}{11}+\frac{5}{11}+\left(-\frac{3}{11}\right)$
   a) $\frac{1}{11}$ b) $\frac{2}{11}$ c) $\frac{9}{11}$ d) $\frac{3}{11}$

8. Add: $\frac{7}{12}+\frac{8}{15}$
   a) $\frac{3}{12}$ b) $1\frac{7}{60}$ c) $1\frac{17}{60}$ d) $\frac{5}{9}$

9. Add: $2\frac{2}{9}+7\frac{7}{12}$
   a) $9\frac{3}{7}$ b) $9\frac{29}{36}$ c) $9\frac{1}{4}$ d) $9\frac{3}{4}$

10. Find the sum of $-\frac{7}{15}$ and $-\frac{11}{18}$.

a) $-\frac{6}{11}$ b) $-1\frac{7}{90}$ c) $-1\frac{7}{18}$ d) $-\frac{1}{5}$

11. Evaluate $x+y$ when $x=\frac{1}{4}$ and $y=\frac{5}{6}$.

a) $1\frac{1}{12}$ b) $\frac{3}{5}$ c) $\frac{5}{12}$ d) $1\frac{1}{6}$

12. Evaluate $x+y$ when $x=\frac{4}{21}$ and $y=-\frac{25}{28}$.

a) $\frac{59}{84}$ b) $-1\frac{1}{12}$ c) $1\frac{1}{12}$ d) $-\frac{59}{84}$

13. Subtract: $\frac{8}{9}-\frac{7}{15}$

a) $\frac{1}{45}$ b) $\frac{19}{45}$ c) $\frac{73}{90}$ d) $\frac{19}{30}$

14. Subtract: $-\frac{11}{20}-\frac{7}{30}$

a) $-\frac{47}{60}$ b) $\frac{19}{60}$ c) $\frac{47}{60}$ d) $-\frac{19}{60}$

15. Subtract: $8-4\frac{3}{7}$

a) $3\frac{2}{7}$ b) $3\frac{3}{7}$ c) $4\frac{3}{7}$ d) $3\frac{4}{7}$

16. Find the difference between $4\frac{1}{2}$ and $1\frac{3}{5}$.

a) $2\frac{1}{10}$ b) $3\frac{2}{5}$ c) $6\frac{1}{10}$ d) $2\frac{9}{10}$

17. What is $\frac{7}{10}$ less than $3\frac{5}{8}$?

a) $4\frac{13}{40}$ b) $2\frac{37}{40}$ c) $2\frac{3}{4}$ d) $3\frac{3}{10}$

18. Evaluate $x-y$ when $x=-\frac{3}{8}$ and $y=-\frac{1}{20}$.

a) $-\frac{1}{7}$ b) $-\frac{13}{40}$ c) $-\frac{3}{10}$ d) $-\frac{17}{40}$

19. You purchased $5\frac{3}{8}$ acres of land and then sold $2\frac{3}{4}$ acres of the property. How many acres of the property do you own now?

a) $8\frac{1}{8}$ acres b) $3\frac{3}{8}$ acres c) $2\frac{3}{4}$ acres d) $2\frac{5}{8}$ acres

20. A $2\frac{5}{6}$ foot piece is cut from a 5-foot board. Find the length of the remaining piece of board.

a) $2\frac{1}{6}$ ft b) $7\frac{5}{6}$ ft c) $3\frac{1}{6}$ ft d) $2\frac{5}{6}$ ft

21. Multiply: $-\frac{7}{9} \cdot \frac{3}{7}$

a) $-\frac{1}{21}$ b) $-2\frac{1}{3}$ c) $-1\frac{13}{63}$ d) $-\frac{1}{3}$

22. Multiply: $-21 \cdot \frac{3}{14}$

a) $-\frac{1}{2}$ b) $-\frac{1}{98}$ c) $-4\frac{1}{2}$ d) $-1\frac{1}{2}$

23. Multiply: $2\frac{1}{4} \cdot 3\frac{1}{5}$

a) $6\frac{1}{20}$ b) $7\frac{1}{5}$ c) $6\frac{2}{5}$ d) $6\frac{3}{4}$

24. Evaluate xy when $x = -\frac{4}{5}$ and $y = \frac{5}{8}$.

a) $-\frac{1}{4}$ b) $-\frac{1}{10}$ c) $-\frac{1}{2}$ d) -2

25. Evaluate xy when $x = 1\frac{1}{14}$ and $y = 5\frac{3}{5}$.

a) $10\frac{1}{2}$ b) $6\frac{47}{70}$ c) $5\frac{3}{10}$ d) 6

26. Divide: $0 \div \frac{3}{5}$

a) $\frac{3}{5}$ b) 0 c) undefined d) $1\frac{2}{3}$

27. Divide: $4\frac{1}{4} \div \frac{17}{20}$

a) 5 b) $3\frac{49}{80}$ c) $\frac{1}{5}$ d) $3\frac{14}{17}$

28. Find the quotient of $\frac{7}{9}$ and $1\frac{1}{13}$.

a) $\frac{98}{117}$ b) $\frac{13}{18}$ c) $\frac{7}{117}$ d) $5\frac{1}{18}$

29. Evaluate $x \div y$ when $x = -\frac{2}{3}$ and $y = \frac{8}{21}$.

a) $-\frac{1}{28}$ b) $-3\frac{1}{2}$ c) $-1\frac{3}{4}$ d) $-\frac{16}{63}$

30. Evaluate $\left(\frac{3}{4}\right)^3$

a) $\frac{27}{64}$ b) $\frac{9}{16}$ c) $2\frac{1}{4}$ d) $\frac{9}{64}$

31. Simplify: $\frac{\frac{4}{9}}{-\frac{2}{3}}$

a) $\frac{8}{27}$ b) $\frac{2}{3}$ c) $-\frac{2}{3}$ d) $-\frac{8}{27}$

32. Find the difference between 47.91 and 13.4.

a) 34.47 b) 34.97 c) 34.87 d) 34.51

33. Evaluate $x - y$ when $x = 19$ and $y = 0.586$.

a) 19.586 b) 19.414 c) 18.604 d) 18.414

34. Find the product of 3.66 and 10^3.

a) 366,000 b) 0.00366 c) 366 d) 3,660

35. Evaluate *xy* when $x = 4.71$ and $y = -0.9$.

a) -36.39 b) -4.239 c) -3.639 d) -42.39

36. What is 42.012 divided by 10^2 ?

a) 4.2012 b) 420.12 c) 4,201.2 d) 0.42012

37. Convert 0.46 to a fraction.

a) $\frac{13}{50}$ b) $\frac{23}{40}$ c) $\frac{13}{25}$ d) $\frac{23}{50}$

38. It costs \$.045 an hour to operate an electric motor. How much does it cost to operate the motor for 60 h?

a) \$27 b) \$60.45 c) \$2.70 d) \$13.33

39. Simplify: $-\sqrt{49}$

a) 7 b) -7 c) -23 d) -49

40. Simplify: $\sqrt{100}+\sqrt{256}$

a) 18.8680 b) $\sqrt{26}$ c) 26 d) 178

41. Simplify $-3(2x-5)$ by using the Distributive Property.

a) $-6x-15$ b) $-6x-5$ c) $-6x+15$ d) $6x-15$

42. Simplify $-5(-4a-2)$ by using the Distributive Property.

a) $-4a+10$ b) $20a-2$ c) $20a+10$ d) $-20a+10$

43. Simplify: $3b-7a-10b$

a) $-7a-7b$ b) $7a-7b$ c) $-14ab$ d) $-7a+7b$

44. Simplify: $2a+3(a-b)-4(a+b)$

a) $-a-7b$ b) $a+7b$ c) $9a-b$ d) $a-7b$

45. Add: $(2p^2+6p-9)+(5p^2-8p+7)$

a) $7p^2-14p-16$ b) $3p^2-2p-2$ c) $7p^2-2p-2$ d) $7p^2-14p+16$

46. Subtract: $(7y^2-3y+9)-(5y^2-5y+12)$

a) $2y^2-3y+21$ b) $2y^2+2y-3$ c) $12y^2-8y+21$ d) $2y^2-8y+21$

47. Multiply: $a^6 \cdot a^4$

a) $2a^{24}$ b) $2a^{10}$ c) a^{24} d) a^{10}

48. Multiply: $(-2ab)(3a^2b^4)$

a) $-6a^3b^5$ b) $6a^3b^4$ c) $-6a^2b^4$ d) $-6a^3b^6$

49. Multiply: $(2m^2n^3)(-3m^3n^4)$

a) $-6m^5n^{12}$ b) $-6m^5n^7$ c) $-6m^6n^7$ d) $-6m^6n^{12}$

50. Multiply: $(a^2b^2c^4)(a^3b)$

a) $a^6b^2c^4$ b) $a^5b^2c^4$ c) $a^5b^3c^4$ d) $a^6b^3c^4$

51. Simplify: $(x^2y^3)^2$

a) x^4y^6 b) x^4y^9 c) x^4y^5 d) x^5y^5

52. Simplify: $(a^2b^4)^6$

a) $a^{12}b^{24}$ b) $a^{12}b^{10}$ c) a^8b^{10} d) a^8b^{24}

53. Multiply: $3n(2n^2+2n-1)$

a) $6n^3+6n^2-3n$ b) $5n^3+5n^2-3n$ c) $6n^3-6n^2-3n$ d) $6n^3+5n^2-3n$

54. Multiply: $x^2y^4\left(5y^2-3xy-x^2\right)$

a) $5x^2y^6-3x^3y^5-x^2$ b) $5x^2y^6-3x^3y^4-x^4y^4$

c) $5x^2y^6-3x^3y^5-x^4y^4$ d) $5x^2y^6-3xy-x^2$

55. Multiply: $(2x-5)(3x+7)$

a) $6x^2-29x+35$ b) $6x^2+x-35$ c) $6x^2-29x-35$ d) $6x^2-x-35$

56. Simplify: $\dfrac{a^4b^5}{ab^8}$

a) $\dfrac{a^3}{b^3}$ b) $\dfrac{1}{a^3b^3}$ c) $\dfrac{a^4}{b^{40}}$ d) a^3b^3

57. Simplify: $\dfrac{-20y^{10}}{10y^5}$

a) $-2y^2$ b) $\dfrac{1}{2y^2}$ c) $-2y^5$ d) $\dfrac{1}{2y^5}$

58. Translate "the difference between four times w and nine" into a variable expression.

a) $9w-4$ b) $9-4w$ c) $4w-9$ d) $4-9w$

59. Translate "5 increased by the quotient of *m* and 3" into a variable expression.

a) $5+\dfrac{3}{m}$ b) $5+\dfrac{m}{3}$ c) $\dfrac{5}{m}+3$ d) $5m+3$

60. Translate "twelve more than the difference between a number and ten" into a variable expression. Then simplify.

a) $x+2$ b) $x+12$ c) $x+22$ d) $x-2$

61. Solve: $3=x-2$

a) 1 b) 5 c) $\dfrac{2}{3}$ d) -1

62. Solve: $7+t=-2$

a) 9 b) -5 c) -9 d) 5

63. Solve: $x+\dfrac{1}{2}=-\dfrac{3}{4}$

a) $\dfrac{5}{4}$ b) $-\dfrac{5}{4}$ c) $\dfrac{1}{4}$ d) $-\dfrac{1}{4}$

64. Solve: $3x-5=5x+7$

a) -1 b) 6 c) $-\dfrac{3}{2}$ d) -6

65. Solve: $-3w-4=5w-20$

a) -8 b) -12 c) 2 d) $-\dfrac{2}{3}$

66. Solve: $3(n-2)+7=5$

a) $\frac{4}{3}$ b) 6 c) $\frac{14}{3}$ d) $\frac{3}{4}$

67. Solve: $-3t-4(2-t)=-5$

a) $-\frac{4}{3}$ b) -13 c) 3 d) $-\frac{3}{4}$

68. Translate "the quotient of a number and seven is two" into an equation and solve.

a) 14 b) $\frac{2}{7}$ c) $\frac{7}{2}$ d) -14

69. The difference between four and twice a number is ten. Find the number.

a) -7 b) 3 c) -3 d) 7

70. Find the perimeter of a triangle with sides 21.3 cm, 17.4 cm, and 14.8 cm.

a) 43.5 cm b) 53.7 cm c) 52.5 cm d) 53.5 cm

71. Find the circumference of a circle with a radius of 6 cm. Use $\pi \approx 3.14$.

a) 113.04 cm b) 18.84 cm c) 38.68 cm d) 37.68 cm

72. Find the circumference of a circle with a diameter of 28 in. Use $\pi \approx \frac{22}{7}$.

a) 88 in. b) 44 in. c) 132 in. d) 66 in.

73. Find the perimeter of a square in which the sides are equal to 15 m.

a) 45 m b) 80 m c) 60 m d) 30 m

74. Find the length of aluminum framing needed to frame a picture that is 6 ft by 4 ft.

a) 12 ft b) 24 ft c) 20 ft d) 10 ft

75. Find the area of a triangle with a base of 8 ft and a height of $1\frac{3}{4}$ ft.

a) 14 ft^2 b) 9 ft^2 c) 7 ft^2 d) $9\frac{3}{4}$ ft^2

76. Find the area of a square with a side of 7 ft.

a) 14 ft^2 b) 49 ft^2 c) 24.5 ft^2 d) 56 ft^2

77. Find the area of a rectangle with a length of 37 in. and a width of 15 in.

a) 555 $in.^2$ b) 52 $in.^2$ c) 104 $in.^2$ d) 277.5 $in.^2$

78. Find the area of a rectangle with a length of 52 cm and width of 27 cm.

a) 702 cm^2 b) 79 cm^2 c) 1,404 cm^2 d) 158 cm^2

79. Add: $-11+(-3)+24$

a) 10 b) 16 c) 32 d) -38

80. Add: $-17+(-4)+13+(-6)$

a) -6 b) -14 c) -28 d) 20

81. Evaluate $-x+y$ when $x=-9$ and $y=-7$.

a) -16 b) 16 c) -2 d) 2

82. Subtract: $-9-4$

a) 13 b) -13 c) -5 d) 5

83. What is the difference between -11 and -7?

a) 4 b) -18 c) 18 d) -4

84. Simplify: $-4+12-(-6)+(-2)$

a) -24 b) -12 c) 12 d) 0

85. Evaluate $a-b$ when $a=-7$ and $b=-13$.

a) 6 b) -6 c) -20 d) 20

86. Find the product of -100 and 5.

a) 500 b) -500 c) -95 d) -5,000

87. What is the product of -40 and 60?

a) 20 b) -240 c) -2,400 d) 2,400

88. Evaluate $-4cd$ when $c=24$ and $d=-7$.

a) -672 b) 672 c) -35 d) 13

89. Divide: $-154\div 7$

a) -147 b) -1,078 c) -22 d) 22

90. Find the quotient of -500 and 50.

a) 10 b) -10 c) -25,000 d) -450

91. Evaluate $a\div b$ when $a=-45$ and $b=-5$.

a) 225 b) -50 c) -9 d) 9

92. Evaluate $\dfrac{x}{-y}$ when $x=-56$ and $y=-8$.

a) -64 b) -7 c) 7 d) -48

93. Simplify: $-12(6-8)+3^3\cdot 1^2\cdot 3-5(5)$

a) 128 b) 500 c) 32 d) 80

94. Write 62% as a fraction.

a) $\dfrac{31}{25}$ b) $\dfrac{50}{31}$ c) $\dfrac{31}{50}$ d) $\dfrac{3}{5}$

95. Write $\frac{3}{4}\%$ as a fraction.

a) $\frac{3}{4}$ b) $\frac{3}{40}$ c) $\frac{6}{25}$ d) $\frac{3}{400}$

96. Write 7.3% as a decimal.

a) 0.073 b) 7.3 c) 730 d) 0.73

97. Write 240% as a decimal.

a) 24 b) 2.4 c) 0.24 d) 24,000

98. Write 0.065 as a percent.

a) 650% b) 65% c) 0.65% d) 6.5%

99. Write $\frac{9}{40}$ as a percent.

a) 22.5% b) 225% c) 2.25% d) 0.225%

100. What percent of 75 is 50?

a) $66\frac{2}{3}\%$ b) 150% c) 33% d) 0.67%

101. 60% of what is 72?

a) 120 b) 12 c) 43.2 d) 80

102. Find 150% of 120.

a) 80 b) 150 c) 180 d) 125

103. $\frac{1}{2}\%$ of what is 5?

a) 100 b) 2.5 c) 10 d) 1,000

104. What is 13% of 12,000?

a) 1,660 b) 923.07 c) 1,560 d) 1,460

ANSWER KEY

1. d	2. d	3. a	4. d	5. c	6. c	7. d	8. b	9. b	10. b
11. a	12. d	13. b	14. a	15. d	16. d	17. b	18. b	19. d	20. a
21. d	22. c	23. b	24. c	25. d	26. b	27. a	28. b	29. c	30. a
31. c	32. d	33. d	34. d	35. b	36. d	37. d	38. c	39. b	40. c
41. c	42. c	43. a	44. d	45. c	46. b	47. d	48. a	49. b	50. c
51. a	52. a	53. a	54. c	55. d	56. a	57. c	58. c	59. b	60. a
61. b	62. c	63. b	64. d	65. c	66. a	67. c	68. a	69. c	70. d
71. d	72. a	73. c	74. c	75. c	76. b	77. a	78. c	79. a	80. b
81. d	82. b	83. d	84. c	85. a	86. b	87. c	88. b	89. c	90. b
91. d	92. b	93. d	94. c	95. d	96. a	97. b	98. d	99. a	100. a
101. a	102. c	103. d	104. c						