6th Grade

Accelerated
Summer Packet

2019

1.Find the GCF of the numbers. State if they are relatively prime:

a.) 25, 100

b.) 30, 45

c.) 5 and 49

d.) 44, 110

2.Find the LCM of 35 and 45

3.Write the prime factorization of 360

4. Write 4.06 as a fraction in lowest terms.

5. Write as a decimal and as a percent.

a.) $\frac{1}{8}$

b.) $\frac{2}{8}$

c.) $\frac{3}{8}$

d.) $\frac{4}{8}$

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

f.) $\frac{6}{8}$

g.) $\frac{7}{8}$

h.) $\frac{8}{8}$

6. Write 5.5% as a decimal and as a fraction in lowest terms.

7.) Write .085 as a fraction is lowest terms.

8.) Place in order from least to greatest:

4.020, 4.2, 4.202, 4.2002, 4.2022, 4.002

9. Find 10% of:

a.) 100

b.) 20

c.) 5

d.) 1.4

10. What is 20% of:

a.) 200

b.) 100

c.) 10

d.) 5

11. Write 0.958 as a percent:

12. 25 is what percent of 50?

13. Write 850% as a decimal.

14. Write 1.5% as a fraction.

15. What percent is 75 of 300?

16. What percent of 60 is 12?

17. What number is 10% of 250?

18. 6 is 10% of what number?

19. Find the percent of change from 60 to 30.

20. Find the percent of change from 8 to 16.

21. If Jane leaves a 15% tip for her waiter on a $69.50 dinner bill. How much did she leave as a tip? Round to the nearest cent.

22. A board game that has a regular price of $24.99 is on sale at 20% off. What is the sale price?

23. Shira bought a new pair of snow boots for her ski trip that were on sale for 30% off the regular price of $299. How much did Shira pay for the boots?

24. James works on commission at West Elm. He earns 8% of sales on top of his weekly salary of $250. This week, he sold $16,500 worth of West Elm furniture, what was his total paycheck this week?

25. How much interest would you owe if you borrowed $3,000 from the bank at a 4.5% interest rate for a year?

26. Eve paid $4,500 for a used car that was marked at $5,000. What <u>percent discount</u> did she receive?

27. Write in scientific notation:

   a. 1,560,000,000
   b. .0047

28. Write in standard form:

a.) 3.56 x 10^3

b.) 6.9 x 10^{-5}

29. Solve following the Order of Operations. SHOW ALL WORK!

a.) -4 x -3 x -2

b.) 98.17 − 2.2(8-5.2)

c.) $\sqrt{256} + -6^2$ x 2 + 5 ÷ $(-1)^9$ =

d.) -3 x $\left| 4 -11 \right|$ + 56 ÷ 2^3 =

e.) $\frac{12 \, x \, 9}{3}$ + 64 ÷ 4^2

30. Evaluate:

a.) b^3 x b^4 =

b.) 4^{-2}

c.) 3^6 x 3^5 =

d.) $\frac{5^6}{5^7}$ =

e.) 3^2 x 4^3

f.) $2y^{-4}$

g.) $x^0(y^{-7})$

31. Simplify:

a.) $x^3(y^4)(x^5)$

b.) $(4ab)(6ab)(ab)$

c.) $\dfrac{108m^7n^8}{27mn}$

d.) $-2w^4(3w)$

e.) $\dfrac{6z^9(8z^3)}{54z^2}$

32. The $\sqrt{52}$ would lie between which two whole numbers?

33. $\sqrt{400}$ =

34. -2^5 =

35. Solve if a = -2, b = 8 AND c = $\dfrac{1}{2}$

a.) (a)(b)(c) =

b.) a + b + c =

c.) $\dfrac{2bc}{a}$ =

d.) 2a + 3b −c

36. Solve if m = .2, n= .6 and p = 4

a.) $\dfrac{m+n}{p}$

b.) 2m − n +3p

37. Solve if a = -2, b = 3 and c =-6

a.) $\dfrac{2bc}{a}$ =

b.) 2a + 3b −c

38. Write in order from least to greatest: -1.5, -.5, -.25, -1, -2

39. State the absolute value and the opposite of -15

40. Simplify. Combine Like Terms.

a.) 3a + 8a + 10a

b.) 12x - 15x -6x −x + 3x + 4x

c.) -4x -6 -9x +8

d.) -2x - $3x^2$ + 4x − 6 − $5x^2$

41. Translate each verbal phrase into an algebraic expression.

a.) The difference of 5 and a number b

b.) The product of -16 and a number r

c.) 54 less than e

d.) The quotient of 36 and a number p

e.) Twice the sum of x and 24

Solve and Check each equation. Show ALL Steps!

42. $\frac{c}{5} = 12$

43. $7 = e + 9$

44. $\dfrac{1}{3} g = 18$

45. $-4 = -h - 7$

46. $B + 3.8 = 7.6$

47. $-6 = -2(x - 3)$

48. $-1.4d = -8.4$

49. $88 = -4n$

50. $-4x + 2 = 2x - 1$

51. $-4 + 5h = 21$

52. $-x - 1 = -19$

53. $\frac{1}{3}y + 5 = 21$

54. $\frac{2}{3}c - 2 = 18$

55. $\frac{x}{-3} + 4 = 90$

56. $\frac{-2c}{5} - 3 = 9$

57. $30 = 2x + 5 - 7x$

58. $7x + 3 - 2x + 1 + x = 76$

59. $-(m+4) = 52$

60. $-6 + 2x - 8 = 24$

61. $21 = -7(x-4)$

62. $2(4x + 5) - 2 = 40$

63. $-2x + 4(6x-2) = 36$

64. $-3(4x+5) - 2(-2x+6) = 9$

65. $\dfrac{4}{12}x = \dfrac{10}{12}$

66. $\dfrac{4}{3}x = \dfrac{1}{6}$

67. $\dfrac{n}{-5}$ = -2.5

68. 6p + 8 = 2(3p + 4)

69. $-\dfrac{2}{9} = \dfrac{1}{4}x - \dfrac{1}{6}$

70. Write each as an equation and solve.

a.)A number x multiplied by 4 equals 36.

b.)27 less than a number t equals 52

c.)The sum of 20 and a number z is 86

d.)8 more than the product of a number m and 16 equals 40

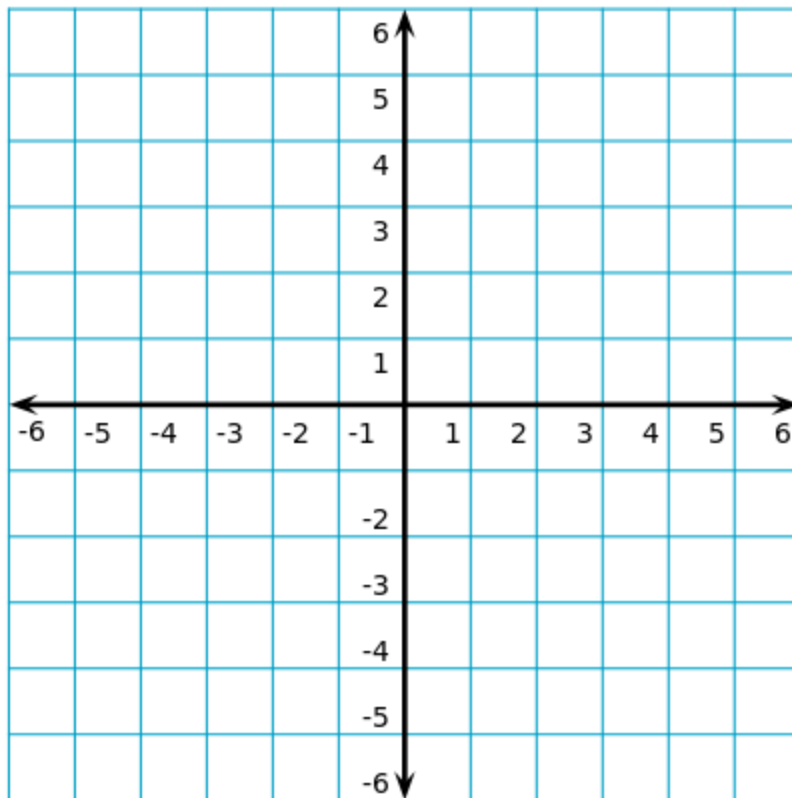71. Write the verbal sentence as an inequality. Then solve the inequality.

a.) Six times a number is no more than -60

b.) Eight times the sum of 6 and a number is less than 64

72. Find the area and perimeter of a rectangle with dimensions of 6.5cm x 2cm.

73. Graph the points on a coordinate plane.

(-2,0), (-5,-5), (0,-3), (0,0)

74. Solve the inequality. Graph the solution on a number line.

a.) x + 5 > −10

b.) 2(2−d) ≥ −2

75. Megan is ordering tacos for her office staff. They cost $2.25 each, including tax, and there is a $6 delivery charge. How many tacos can she buy if she has $45?

76. The minimum fee for Internet access at a local coffee shop is $2. Write an inequality to represent the access fee.

77. Write the fraction in simplest form:

a.) $\dfrac{20t^3}{5t^2}$

b.) $\dfrac{90m^4}{9m^2}$

78. Find the LCM of the monomials

a.) $54m^2n^2$ and 9mn

b.) 15a and $45a^3b^2$

Simplify the expression:

79. $\dfrac{m}{6} - \dfrac{2m}{3}$

80. $\dfrac{-x}{5} - \dfrac{5x}{8}$

81. $\dfrac{-4x}{5} + \dfrac{x}{4}$

82. $\dfrac{x}{6} - \dfrac{x}{5}$

83. $\dfrac{c}{7}\left(\dfrac{21}{15}\right)$

84. $\dfrac{-2x^2}{3}\left(\dfrac{3x}{4}\right)$

85. What do you know about two figures that are:

a.) Congruent?

b.) Similar?

86. The shadow cast by a 4-foot tall female ostrich is 12 feet long. A male ostrich standing nearby casts a shadow that is 15 feet long. How tall is the male ostrich?

87. A rectangle has dimensions of 3 ft. x 8 ft. Find the dimensions of a similar rectangle.

88. A map uses a scale of 1 inch = 20 miles. Two towns on the map are 2.5 inches apart. How far apart are the actual towns?

89. There are 5 red jellybeans, 6 blue and 4 black in a jar.

a.) What are the odds of choosing a blue?

b.) What is the probability of choosing a black?

90. Find the area of a triangle with a base of 3 inches and height of 6 inches.

91. Find the area of a parallelogram with a base of 6 inches and height of 8 inches.

92. Find the surface area of a rectangular prism with a length of 12cm, height of 3 cm and width of 4 cm.

93. Label how many sides each shape has:

a.) pentagon

b.) octagon

c.) heptagon

d.) hexagon

94. a.) The measurement of the angles in a triangle have to add up to
_____ degrees

b.) The measurement of the angles in a quadrilateral have to add up
to _____ degrees

95. Find the volume of a rectangular prism with a length of 8 inches,
width of 6 inches and height of 3 inches.

96. Find the volume of a cylinder with a radius of 2 inches and height
of 8 inches.

97. The two congruent sides of an isosceles triangle are 10 cm and x − 2,
respectively. Find x.

98. Find the area of a trapezoid with the following dimensions: base 1 =
10 ft., base 2 = 6 ft., height = 3ft.

99. Find the length of the hypotenuse of a right triangle with lengths 3 and 4 m respectively.

100. The sum of 3 consecutive odd integers is -63. Find the integers. Write and solve an equation.

101. Could the following represent the side lengths of a right triangle? 14 ft. 16 ft and 20 ft. Prove using the Pythagorean Theorem.

102. The sum of 2 complementary angles is always _____

103. The sum of 2 supplementary angles is always _____

104. Draw a pair of vertical angles. What is true of vertical angles?

105. Find the Area and Circumference of a circle with a radius of 2 inches.

Have a great summer! –Mrs. S