Name _____ Date _____

Pre-Algebra to Algebra Summer Math Enrichment- 2024

(Please clearly show all work and answers on separate paper)

This will count as a homework grade and a quiz will be given on the content the first week of school.

Find each sum or difference.

1. $\frac{5}{12}+3\frac{2}{3}$
2. $-8\frac{1}{2}+6\frac{2}{8}$
3. $12\frac{3}{8}-17\frac{1}{2}$
4. $-5\frac{5}{9}-2\frac{2}{3}$
5. $-3\frac{7}{8}-\left(-1\frac{2}{5}\right)$
6. $-20-17$
7. $-43+19$
8. $23-(-56)$
9. $-34.56-87.09$
10. $14.75-33.12$

Find each product or quotient.

11. $\frac{2}{11}\div\frac{6}{11}$
12. $3\frac{1}{8}\div-\frac{15}{24}$
13. $-\frac{2}{21}\div\left(-\frac{2}{15}\right)$
14. $-2\frac{4}{5}\div\frac{21}{22}$
15. $-4\frac{1}{4}(-3\frac{2}{7})$

Solve for y (rearrange the equation)

16. $3x-4y=5$
17. $x-8y=32$
18. $2(y-4x)=10$
19. $5x=10y+55$
20. $-6y+2x=-96$

Find the slope of the two points.

21. (3,5) (7,12)

22. (−3, −8) (−5, −10)

23. (−8,4) (−8,10)

24. (−3, −11)(6, −11)

25. (−2,7) (−1, −13)

26. (6, −8)(−4,10)

27. William wants to have a total of $4000 in two years so that he can put a hot tub on his deck. He finds an account that pays 5% interest compounded monthly. How much should William put into this account so that he'll have $4000 at the end of two years?

28. Kelly plans to put her graduation money into an account and leave it there for 4 years while she goes to college. She receives $750 in graduation money that she puts it into an account that earns 4.25% interest compounded semi-annually. How much will be in Kelly's account at the end of four years?

29. Using Pythagorean theorem: A baseball diamond is a square with sides of 90 feet. What is the shortest distance, to the *nearest tenth* of a foot, between first base and third base?

30. Using Pythagorean theorem: A suitcase measures 24 inches long and 18 inches high. What is the diagonal length of the suitcase to the *nearest tenth* of a foot?

Simplify.

31. $8x + 3(x + 5) - 7$

32. $4a + 21 + 2(3a - 8) - 10a$

33. $3[4(2a + 4b + c) - 7b - 5a]$

34. $7d - 5r - 3d + 8d^2$

35. $9z + 5x + \frac{2}{3}(3x - 9)$

36. $p + 9g - g + 5x + 12p$

37. $26 + 3 + 4[3 + 4(2a + 5b - 1) - a] + 2$

38. $5(3x^3 + 4y + 2(5z - 3x^3 + y))$

39. $4[3 + 2(3f + 9a) + 2a - f] - 7$

Solve each equation.

40. $6 = 5(3w + 2 - 1) - 1$

41. $2x + 4 = 8$

42. $18 - 0.2x = 12$

43. $3t - 5 = -20$

44. $0.5a = 1.2 + 6.4$

45. $\frac{x}{5} + 9 = 13$

46. $7x - 3(2 - 5x) = 40 - x$

47. $-7 = -9 + \frac{b}{3}$

48. $3c + 2(c + 2) = 13 - (2c - 5)$

49. $\frac{2}{5}(x - 2) = -3$

50. $\frac{1}{5}m + \frac{2}{3} - 2 = m - \frac{2}{5}$

51. $-\frac{1}{4}w - 3 = w + \frac{1}{3}$

52. $\frac{2r+4}{10} = 24$

Solve each proportion.

53. $\frac{300}{24} = \frac{18}{j}$

54. $\frac{w}{5} = \frac{25}{1000}$

55. $\frac{x-3}{x} = \frac{9}{10}$

56. $\frac{5}{r-9} = \frac{8}{r+5}$

57. $\frac{p+10}{p-7} = \frac{8}{9}$

58. $\frac{5}{6} = \frac{7n+9}{9}$

Evaluate each expression if $x = 2, y = 3, z = 4, a = \frac{4}{5}$ and $b = \frac{3}{5}$

59. $x + 7$

60. $3x - 5$

61. $x + y^2$

62. $x^3 + y + z^2$

63. $6a + 8b$

64. $23 - (a + b)$

65. $\frac{y^2}{x^2}$

66. $2xyz + 5$

67. $x(2y + 3z)$

68. $(10x)^2 + 100a$

69. $\frac{3xy-4}{7x}$

70. $a^2 + 2b$

71. $\frac{z^2-y^2}{x^2}$

72. $6xz + 5xy$

73. $\frac{(z-y)^2}{x}$

74. $\frac{25ab+y}{xz}$

75. $\frac{5a^2b}{y}$

76. $(z + x)^2 + ax$

77. $\left(\frac{x}{z}\right)^2 + \left(\frac{y}{z}\right)^2$

78. $\frac{x+z}{y+2z}$

79. $\left(\frac{z-x}{y}\right) + \left(\frac{y+x}{z}\right)$

80. $-y^2 + (-z)^3$