Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Symbolic Representation Test Review

**Directions: Read each question carefully and show all work for full credit.**

***Fill in the table below…***

|  |  |  |
| --- | --- | --- |
| **Fraction** | **Decimal** | **Percent** |
| $$\frac{3}{5}$$ |  |  |
|  | 0.07 |  |
|  |  | 54% |
| $$\frac{2}{3}$$ |  |  |
|  |  | 9% |
|  | 0.649 |  |
|  |  | 500% |

***Evaluate.***

1. $\sqrt{81}$ 2. $\sqrt{-36}$ 3. $\sqrt[3]{1}$ 4. $\sqrt[3]{8}$

5. $-\sqrt{16}$ 6. $\sqrt{121}$ 7. $\sqrt[3]{-27}$ 8. $\sqrt[3]{216}$

$9. -\sqrt{100}$ 10. $\sqrt{9}$ 11. $\sqrt[3]{27}$ 12. $-\sqrt{225}$

13. $\sqrt{-4}$ 14. $\sqrt{81}$ 15. $\sqrt[3]{-27}$ 16. $\sqrt[3]{125}$

17. $\sqrt{400}$ 18. $\sqrt{\frac{4}{16}}$ 19. $\pm \sqrt{\frac{64}{121}}$ 20. - $\sqrt{\frac{16}{81}}$

21. $\sqrt{5\left(4+2\right)-10÷5+7∙3}$ 22. $\sqrt{9x6+10÷5+4∙2}$

***Estimate each to the nearest tenths place.***

23. $\sqrt{10}$ 24. $\sqrt{3}$ 25. $\sqrt{110}$ 26. $\sqrt{72}$

***Order the following from least to greatest.***

 *27.*$\sqrt{2}$, 1.5, 1, 3, $π$, $\sqrt{8}$, 2, 28. 4.5, $\sqrt{9}$, $\sqrt{6}$, 3, $π$, $\sqrt{18}$, 4

***For each of the following state, “rational” or “irrational” and explain why.***

29. $π$ 30. $\sqrt{100}$ 31. $\sqrt{18}$

32. 19.8 33. 19 34. -38.9

35. 19.168423… 36. 8.16161616… 37. 9.010010001…

***Write each of the following numbers in scientific notation.***

38. 9,260,000,000,000 39. 0.000000528 40. 0.00061

41. 8.7E-9 42. 9.24E8 43. 65,000

 ***Write each of the following numbers in standard notation.***

44. 7.1 x 109 45. 1.75 x 10-3 46. 4.813 x 10-7

 47. 6.8 x 10-3 48. 9.432 x 103 49. 3.1 x 1013

***Simplify completely****.*  ***Where necessary, express your answer using only POSITIVE exponents.***

50. a●a●a●b●b●b●b●b●b 51. a3●b2●a●b6 52. x7●y2●xy3

53. 2x3●3x 54. 32●3 55. 32●52

56.x6●x7 57. x2●y5 58. $\frac{6^{5}}{6^{3}}$

59. $\frac{36m^{4}n^{6}}{6m^{2}n}$ 60. $\frac{4x^{4}y^{3}z^{5}}{40x^{9}yz^{2}}$ 61. $5ab●a^{5}$●$b^{2}●c^{3}$

62. 3063.k064. 5x2y0

65.a1 66. (23)2 67. (x5)4

68. (x5y5)2 69. $\left(\frac{1}{x^{2}}\right)^{3}$

***Write using only positive exponents.***

70. x-2 71. $\frac{(a^{4}●b)}{(a^{2}●b^{8})}$ 72. $\frac{(x^{4})}{(x^{-3})}$ 73. $\frac{(6●c^{10}●d^{4})}{(3c^{12}●d^{10})}$

***Fill in the box.***

 74. a ● a5 = a8 75. n = $\frac{1}{n^{5}}$

***Write each answer using scientific notation.***

46. 3.2 x 104 + 1.5 x 106 47. 8.4 x 104 - 5.4 x 103

48. 6.2 x 106 ÷ 2.1 x 103 49. 7.4 x 109 ● 1.4 x 103

***Circle the appropriate unit of measure for each of the following…***

50. The average length of a newborn is 43.2 mm / cm / m.

51. An average weight of a newborn is 3.2 mg / g / kg

52. Three cities lies on a straight line. From west to east the cities are Allentown, Bakersville, and Cooperstown. Allentown is 3.1 x 103 miles from Bakersville. Bakersville is 2.6 x 102 miles from Cooperstown. If these cities lie on a straight line, how far would it be from Allentown to Cooperstown?

53. Star A is 3.6 x 1019 miles from Earth. If Star B is three times the distance away from earth as Star A, how far away from Earth is Star B?