

Math 20: Arithmetic

Final Exam

Date: _____

Name: _____

%

MWF

MW

TR

No Calculators allowed. Closed Notes & Book.

All problems are worth 2 pts each

True or False. **Circle whether the statement is true or false for one point and justify why for the rest of the points.**

1. T/F $.72 \left(\frac{1}{2}\right) = \frac{.72}{2}$

2. T/F The **commutative** property of addition states that the way you order your addition does not affect the sum.

3. T/F $(7+4)+5=7+(4+5)$ is an example of the associative property of addition.

4. T/F All Rational Numbers (positive and negative fractions) can be expressed as one of these:
 - a. A terminating decimal
 - b. A non-terminating decimal that never repeats.

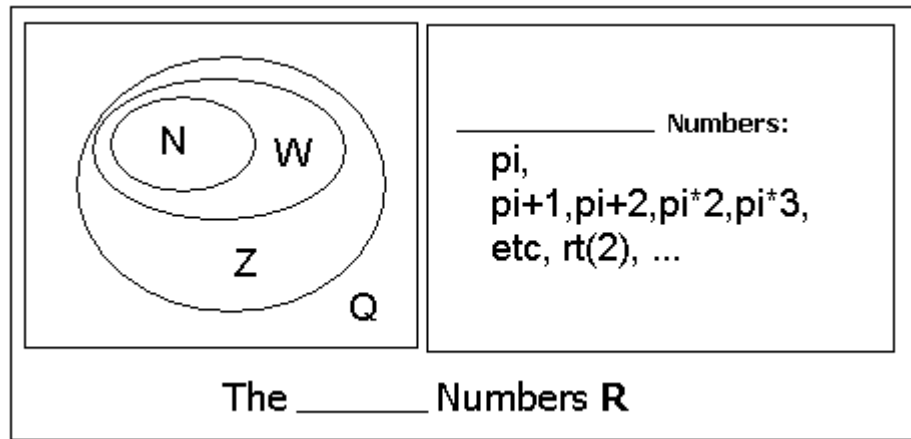
5. T/F -3^{2654} will have a positive result.

6. T/F $-6\frac{5}{9} = -6 - \frac{5}{9}$

7. State an equivalent definition of what it means to be a Prime Number.

8. List/number the Order of Operations. Be sure that if some operations are grouped together that you indicate this.

9. A) State the definition of a percent. B) State the definition of a factor
10. State the Fundamental Theorem of Arithmetic (the fingerprint idea)
11. (10 pts) Is 111,111,111,111 divisible by: 2 Y/N? by 3 Y/N? by 4 Y/N? by 5 Y/N? by 6 Y/N? by 7 Y/N? by 8 Y/N? by 9 Y/N?
12. State the definition of a proportion.



13. (10 pts. Total.)

In the above diagram, Fill in the two blanks for 2 pts.

2pts. N is a symbol representing which set of numbers? _____

2pts. W is a symbol representing which set of numbers? _____

2pts. Z is a symbol representing which set of numbers? _____

2pts. Q is a symbol representing which set of numbers? _____

14. Explain how you could multiply the numbers 13 and 7 in your head. You can explain it in writing or using correct math relationships. Do not use the normal multiplication algorithm you learned in grade school.
15. When you multiply a number by a power of ten you move the decimal to the _____.
16. When you divide a number by a power of ten you move the decimal to the _____.
17. What number is 45% of 300? _____

Find the prime factorization of the following on the line provided.

18. 36

19. 90

20. 210

36 = _____

90 = _____

210 = _____

Find the Least Common Multiple of the following numbers. Express your answer as a single number.

21. LCM(35,40)

22. LCM(35,90)

23. LCM(9,35,6)

= _____

= _____

= _____

Express these decimals as a proper or improper fraction in lowest terms.

24. -.37

25. 5.193

26. .003

Find the product or quotient of the following numbers. Express your answer as a single number.

27. $.001345 \cdot 100$

28. $\frac{19.89}{100}$

29. $\frac{174.5}{1000}$

= _____

= _____

= _____

Find the GCF (greatest common factor) of the following

30. GCF (108,24)

31. GCF (26,39)

32. GCF (77,132)

Evaluate each expression.

SHOW YOUR WORK BELOW THE PROBLEM, BUT PUT YOUR FINAL ANSWER ON THE BLANK PROVIDED. Leave all **fraction** answers as *proper or improper fraction in lowest terms* (no mixed numbers please) or if you use **decimals** *round* your answer to the *nearest hundredth*.

33. $2^6 =$ _____

43. $3\frac{2}{3} + 5\frac{2}{9} =$ _____

34. $-2(-3)(-5) =$ _____

44. $3\frac{2}{3} \cdot 5\frac{2}{9} =$ _____

35. $-5|-4| =$ _____

36. $-3 - 4(2) =$ _____

45. $3\frac{2}{3} - 5\frac{2}{9} =$ _____

37. $|-5 - 5(2)| =$ _____

46. $\frac{0}{-9} =$ _____

38. $-\frac{2}{5} - \frac{2}{25} =$ _____

47. $\frac{-7}{0} =$ _____

39. $\frac{4}{3} \cdot 2 =$ _____

48. $\left(-\frac{8}{9}\right)^2 =$ _____

40. $\frac{4}{3} \div 4 =$ _____

49. $\sqrt{-25} =$ _____

41. $\frac{1}{3} + \frac{1}{4} =$ _____

50. $\sqrt{225} =$ _____

42. $\frac{7}{5} - \frac{9}{5} =$ _____

51. $\sqrt{.49} =$ _____

52. $\left| -\frac{3}{16} - \left(-\frac{1}{2}\right)^3 \right| = \underline{\hspace{2cm}}$

56. $(81 - 9^2) \div [-3 - (-3)] = \underline{\hspace{2cm}}$

53. $\sqrt{\left(\frac{144}{49}\right)} = \underline{\hspace{2cm}}$

57. $\left(\frac{5}{4}\right)^2 + \left(\frac{2}{3} - 2\frac{1}{6}\right) = \underline{\hspace{2cm}}$

54. $(9 - 2)^2 - 3^3 = \underline{\hspace{2cm}}$

58. $\left(1 - \frac{1}{2}\right)^2 + \left(2\frac{1}{2} + .5\right)^2 = \underline{\hspace{2cm}}$

55. $6[15 + (5 \cdot 2^2)] = \underline{\hspace{2cm}}$

59. $\left| -\frac{3}{16} - (-.5)^3 \right| = \underline{\hspace{2cm}}$

60. Express the numbers eight, fifteen, & seventeen in base 2.

61. Add the numbers three and six, but do it in base 3.

62. Convert the decimal .888888... into a single fraction

63. Convert the decimal .787878... into a single fraction

64. Convert the decimal .0787878... into a single fraction

65. Convert the decimal .00787878... into a single fraction

66. Convert the decimal 1.002323... into a single fraction

67. Given that 1 ft = 12 in Fill in the blank $1/12 \text{ ft}^3 = \underline{\hspace{2cm}} \text{ in}^3$

68. If the height of a person is 6 ft, their shadow is 12 ft long, and the shadow of the Rotunda of the FL2 building is 96 ft long then how tall is the rotunda? **BOX YOUR ANSWER**

69. How much interest would be owed on a 4% (annual) simple interest loan if the principal, P, is \$400 and the duration of the loan is 3 years? Hint: Interest = principal * rate* time or $I = p \cdot r \cdot t$

70. If a loan was taken out for \$2,000, and the interest accrued was \$100 dollars, what is the Amount, A, that is due when paying off the loan?

71. $12 - 3\frac{1}{5}$

$8\frac{3}{7} - 5$

$3\frac{3}{4} + 4\frac{3}{5} + 5\frac{1}{2}$

72. $5\frac{1}{8} \cdot 2\frac{5}{6}$

$5\frac{1}{8} \div 2\frac{5}{6}$

$$\begin{array}{r} 24\frac{1}{3} \\ + 98\frac{1}{2} \\ \hline \end{array}$$