Meramec Intermediate Algebra TEST 1 Spring 2009

NAME: _____Score_____/100
Please print

SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION

2 points each for questions 1 – 32. 5 points each for questions 33 – 39.

Circle T or F, whichever is correct.

1. T F $3 - 4 = 12$.

2. T F $\mathbf{R \subset Q}$.

3. T F $\{x \mid x \in R \text{ and } 1 < x \leq 5\} = (1, 5)$

4. T F $\sqrt{7}$ is a real number.

5. T F $3 - (4 - 5) = 3 + (-4 - 5)$

6. T F The opposite of $\frac{11}{7}$ is $\frac{7}{11}$.

7. T F If x represents a negative number, then the absolute value of x is the opposite of x.

8. T F (5, 3) is acceptable interval notation.

9. T F If x is a real number, then $-x$ is negative.

10. T F On the real number line the relation "less than" means "is to the right of".

Fill in each of the blanks to make the statements true.

11. A _____ is a collection of objects.

12. The formula for the area of a circle is _____ .

13. The set A is a subset of the set B if every element of set _____ is an element of set _____.

14. In the expression 3^5, 3 is the _____ and 5 is the _____.

15. $\frac{0}{4}$ is _____.

16. The product of two real numbers with different signs is _____.

17. The transitive property of equality states that if a = b and b = c, then _____.

18. A real number which is not rational is _____.

19. $\frac{4}{0}$ is _____.

20. Absolute value is defined by _____ = $\begin{cases} \_\_\_\_\_ \\ \\ \_\_\_\_\_ \end{cases}$

21. Complete the statement of the Law of Trichotomy.
If a and b are real numbers, then one and only one of the following is true:
i) _____
ii) _____
iii) _____

22. If a and b are real numbers and ab = 0, then _____ or _____.

23. The property of the real numbers which justifies $3(x + 2y) = 3x + 6y$ is the _____ property.

24. Simplify $6x^2 + 2 - 4(x^2 + 1)$. Your work should be shown as a "chain" of equalities. I will start it and end it for you. You should fill in the missing steps.

$6x^2 + 2 - 4(x^2 + 1) =$ _____ $=2(x^2 - 1).$

25. $\frac{0}{-3} =$ _____

26. $(-2)^4 =$ _____

27. $-7^2 =$ _____

28. $(5)^0 =$ _____

29. $-8 - (-10) =$ _____

30. $3(5 - 7)^2 =$ _____

31. $\{x \in W \mid x > 8\}$ is an example of _____ notation for a set.

32. [3, 5) is an example of _____ notation.

Show your work on exercises 33 – 39 inclusive (5 pts each). No work –No Credit Be neat!

33. $25 - [(3 - 5) + (14 - 18)]^2 =$

34. Simplify the expression $3x - 2(x - 5) + x$

35. Simplify $-4 + 6 - 3 - (-14)$

36. Calculate the area of a trapezoid whose height is 5 and it bases are B = 4 and b = 6. State the formula and then use the formula.

37. Simplify $\dfrac{\left(\frac{1}{2}\right)12 - 7}{3 + \left(\frac{1}{3}\right)9}$

38. Complete the following diagram to convert the subtraction problem to an equivalent addition problem.

$$\begin{array}{ccc} -2 & - & (-7) \\ \downarrow & \downarrow & \downarrow \\ \_\_\_ & \_\_\_ & \_\_\_ \end{array}$$

39. Complete the following diagram to convert the division problem to an equivalent multiplication problem.

$$\begin{array}{ccc} -\frac{3}{4} & \div & (-\frac{5}{7}) \\ \downarrow & \downarrow & \downarrow \\ \_\_\_ & \_\_\_ & \_\_\_ \end{array}$$