Meramec Intermediate Algebra TEST 1 Spring 2010

NAME: _____ Score _____/100
Please print

SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION

Circle T or F, whichever is correct. (2 pts each)

1. T F $5(-4) = 1$.

2. T F **$\mathbf{Q \subset Z}$.**

3. T F $\{x \mid x \in R \text{ and } 7 \le x \le 12\} = (7,12)$

4. T F $\sqrt{5}$ is not a real number.

5. T F $5 - (-2 - 7) = 5 + (2 - 7)$.

6. T F The opposite of $\frac{5}{13}$ is $-\frac{13}{5}$.

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

8. T F [6, 4) is acceptable interval notation.

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

10. T F $-5^3 = (-5)^3 = -125$.

11. **(3 pts)** Check each of the following which are equal to the interval [4, 7).

☐ $\{x \mid 4 < x < 7\}$ ☐ $\{x \mid 4 \le x < 7\}$ ☐ $\{4,5,6\}$

☐ $\{x \mid 4 < x \le 7\}$ ☐ $\{x \mid 4 \le x \le 7\}$ ☐ $\{5,6,7\}$

☐ $(7,4]$ ☐ $[4,6]$ ☐ $\{x \mid x \in N \text{ and } 4 \le x < 7\}$

12. **(3 pts)** Check each of the following which are equal to the opposite of the fraction $\frac{x}{y}$.

☐ $\frac{-x}{-y}$ ☐ $-\frac{-x}{-y}$ ☐ $-\frac{x}{-y}$

☐ $-\frac{x}{y}$ ☐ $-\frac{-x}{y}$ ☐ $\frac{-x}{y}$

☐ $\frac{x}{-y}$ ☐ $\frac{y}{x}$

Fill in each of the blanks to make the statements true. (2 pts each)

13. A _____ is a collection of objects.

14. The formula for the area of a rectangle with lengh x and width y is _____ .

15. $\frac{7}{0}$ is _____.

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

17. Give an example of a binary relation: _____.

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

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

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

21. On the number line the symbol > means "to the _____ of".

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

23. 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) _____

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

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

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

27. $(-2)^4$ = _____

28. -7^2 = _____

29. $-7-(-12)$ = _____

30. $2(2-6)^2$ = _____

31. A formula must be an _____

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

33. [3, 5) is an example of _____ notation.

34. In the expression a – b, a is called the _____, b is called the _____ and a – b is called the _____ _____.

Show your work on exercises 35 – 40 inclusive (5 pts each). **No work –No Credit Be neat!**

35. $25 - [(3-5) + (14-18)]^2 =$

36. Simplify the expression 3x – 2(x – 5) + x

37. Simplify $\dfrac{\left(\frac{1}{5}\right)(20) - 6}{10 + \left(\frac{1}{4}\right)(12)}$

38. Calculate the area of a trapezoid whose height is 3 and its bases are B = 11 and b = 5. State the formula and then use the formula.

39. Complete the following diagram to convert the subtraction problem to an equivalent addition problem. **(I do not want you to compute the differece.) No work required.**

$$\begin{array}{ccc} -5 & - & (-8) \\ \downarrow & \downarrow & \downarrow \\ \_\_\_ & \_\_\_ & \_\_\_ \end{array}$$

40. Complete the following diagram to convert the division problem to an equivalent multiplication problem. **(I do not want you to compute the quotient.) No work required.**

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