Meramec Intermediate Algebra TEST 5 Spring 2010

NAME: _____Score_____/100

Please print

SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION

3 pts. each for Questions 1 – 20.

1. T F An expression of the form a^n is called an algebraic expression.
2. T F $\frac{2}{3}+\frac{3}{4}=\frac{5}{7}$
3. T F $(a+b)^2 = a^2 + b^2$
4. T F $(ab)^2 = a^2b^2$
5. T F If $\sqrt{x}$ and $\sqrt{y}$ are real numbers, then $\sqrt{xy}=\sqrt{x}\sqrt{y}$
6. T F $\sqrt{x}=x^{\frac{1}{2}}$ if $\sqrt{x}$ is a real number.
7. T F If $\sqrt{x}$ and $\sqrt{y}$ are real numbers, then $\sqrt{x+y}=\sqrt{x}+\sqrt{y}$
8. T F If both sides of an equation involving rational expressions are multiplied by the LCD, the resulting equation is equivalent to the original equation.
9. T F $\frac{3x+\cancel{5}}{y+\cancel{5}}=\frac{3x}{y}$
10. T F Simplifying a complex fraction is a division problem.

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

11. A rational expression is an expression which can be written as a quotient of two _____.
12. If $\frac{a}{b}$ and $\frac{c}{d}$ are fractions, then their product is defined by $\left(\frac{a}{b}\right)\left(\frac{c}{d}\right)=$
13. If $\frac{a}{b}$ and $\frac{c}{d}$ are fractions, then their quotient is defined by $\left(\frac{a}{b}\right)\div\left(\frac{c}{d}\right)=$
14. If $\frac{a}{b}$ and $\frac{c}{b}$ are fractions, then their sum is defined by $\frac{a}{b}+\frac{c}{b}=$
15. Use three signs of a fraction to write the opposite of $\frac{8}{5}$ in four ways.

16. When both sides of an equation are multiplied by and expression containing a varible the solution set of the resulting equation _____ the solution set of the original equation.
17. To subtract one fraction or rational expression from another, change the problem to an _____ problem and proceed according to the rules for addition.
18. When both sides of an equation are squared the solution set of the resulting equation _____ the solution set of the original equation.
19. This symbol $\sqrt{\ }$ is called a _____.
20. When both sides of an equation are multiplied by a _____, the solution set of the resulting equation is equal to the solution set of the original equation.

Problems 21 – 28 are each worth 5 points.

21. Multiply (do not simplify) $\left(\frac{3x-1}{2x}\right)\left(\frac{x+1}{x-2}\right)$

22. Add (do not simplify) $\frac{3x-1}{2x}+\frac{x+1}{x-2}$

23. Simplify $\dfrac{\frac{5x}{x+2}}{\frac{10}{x+2}}$

24. Simplify completely $\sqrt{\frac{8}{49}}$

25. Simplify completely $\sqrt{25x^4y^3}$

26. Write $\left(3x^5\right)^{\frac{1}{2}}$ in radical form.

27. Solve the equation $\frac{2x}{2x-1} + \frac{1}{x} = \frac{1}{2x-1}$

28. Solve the equation $\sqrt{4-x} = x - 2$