

Meramec Intermediate Algebra Sections 5.5-5.8 & Sections 6.1-6.3 TEST 5
Summer 2010

NAME: _____ Score _____/100

Please print

SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION

Course Average _____

No Decimals No mixed numbers No complex fractions No boxed or circled answers

Questions 1 – 20 are 2 pts each. Questions 21 – 35 are 4 pts each.

1. T F If $\frac{a}{b}$ and $\frac{c}{d}$ are fractions, then their product is defined by $\left(\frac{a}{b}\right)\left(\frac{c}{d}\right) = \frac{ac}{bd}$.
2. T F Division is done by changing to multiplication.
3. T F A fraction is an improper fraction if its numerator or its denominator (or both) contains a fraction.
4. T F A fraction has been reduced if the numerator and denominator have no common factors other than 1.
5. T F When multiplying fractions, always multiply the divisor by the multiplicative inverse of the dividend.
6. T F When multiplying rational expressions, the numerator of the product is the product of the numerators.
7. T F If $\frac{a}{b}$ and $\frac{c}{d}$ are fractions, then $\frac{a}{b} + \frac{c}{d} = \frac{a+c}{bd}$.
8. T F To factor a polynomial means to write it as a product.
9. T F Subtraction of rational expressions is defined as an addition.
10. T F $(x+4)^2 = x^2 + 16$.
11. The set of _____ Numbers consists of all numbers which can be written as fractions.
12. A _____ expression is an expression that can be written as the quotient of two polynomials with the denominator not zero.
13. If $\frac{a}{b}$ and $\frac{c}{d}$ are fractions, then their quotient is defined by $\frac{a}{b} \div \frac{c}{d} =$
14. If $\frac{a}{b}$ and $\frac{c}{b}$ are fractions with the same denominator, then their sum is defined by $\frac{a}{b} + \frac{c}{b} =$
15. Squaring a binomial will yield a trinomial whose first and last terms are _____.
16. The _____ of a right triangle is the side opposite the right angle.
17. If a and b are real numbers and $ab = 0$, then _____ or _____.
18. The _____ of two or more monomials is the product of all numbers and letters which divide each of the monomials.
19. If a, b and d are Real numbers and neither b nor d is 0, then $\frac{a}{b} = \frac{\boxed{}}{bd}$.
20. The _____ of $x - y$ is $y - x$.

USE = SYMBOLS WHERE APPROPRIATE

21. Factor Completely. $x(y - 2) + (y - 2)$

22. Factor Completely. $x^3 + 5x^2 - 9x - 45$

23. Factor Completely. $x^2 + 4x + 5$

24. Factor Completely. $64x^2 - 100$

25. Factor Completely. $16x^2 + 8x + 1$

26. Factor Completely. $(x + 3)^2 - 4^2$

27. Solve $x^2 - 9x - 36 = 0$

28. Solve $12x^2 - 17x + 6 = 0$

29. Simplify $\frac{x^2 + 6x - 40}{x + 10}$

30. Multiply and Simplify $\left(\frac{9x + 9}{4x + 8}\right)\left(\frac{2x + 4}{3x^2 - 3}\right)$

31. Change to Multiplication (don't do anything else!) $\frac{x^2 - 4}{3x + 6} \div \frac{2x^2 - 8x + 8}{x^2 + 4x + 4}$

32. Add and Simplify $\frac{7}{2xy^2} + \frac{1}{2xy^2}$

33. Add and Simplify $\frac{x+1}{x^2-6x+8} + \frac{3}{x^2-16}$

34. Simplify $\frac{\frac{5x}{x+2}}{\frac{10}{x-2}}$

35. Simplify $\frac{x^{-1} + 2xy^{-1}}{x^{-2} - x^{-2}y^{-1}}$ Hint: Convert to an improper fraction and then simplify.