

PRACTICE FINAL – MATH 099/109

#1. By paying \$50 cash up front and the balance at \$35 a week, how long will it take to pay for a computer costing \$960?

#2. A bus operates between Miami International Airport and Miami Beach, 10 miles away. It makes 20 round trips per day, carrying 32 passengers per trip. If the fare eachway is \$11.00, how much money is taken in from one day's operation?

#3. Find the prime factorization of 252.

#4. The product of 5 and a number, decreased by 9, is 310. What is the number?

#5. A long distance telephone plan has a monthly fee of \$15.00 and a rate of \$0.05 per minute. How many minutes can you chat long distance in a month for a total cost, including the \$15.00, of \$45.00?

#6. Find a rational number halfway between  $\frac{1}{2}$  and  $\frac{2}{3}$ .

#7. Find the greatest common divisor of 48 and 72.

#8. Find an estimate of  $0.48992 \times 120$ . DO NOT USE A CALCULATOR.

#9. Estimate the answer. DO NOT USE A CALCULATOR. The cost for opening a restaurant is \$485,000. If 19 people decide to share equally in the business, estimate the amount each must contribute.

#10. Evaluate  $5x - 7x - 2$  when  $x = -5$ .

#11. Solve the inequality and graph the solution:  $6 - 9x > 33$

#12. Express  $\frac{7}{12}$  as a decimal.

#13. Find the least common multiple of 48 and 72.

#14. Perform the indicated operation:  $-6 - (5 - 12)$

#15. Find a counterexample to show that the following statement is false: If a two-digit number is multiplied by a one-digit number, the answer is a two-digit number.

#16. In a class, there are 15 men and 10 women. Find the ratio of the number of women to the number of students in the class. First express the ratio as a fraction reduced to lowest terms. Then rewrite the ratio using a second method.

#17. The amount of current flowing in an electrical circuit varies inversely as the resistance in the circuit. When the resistance in a particular circuit is 5 ohms, the current is 42 amperes. What is the current when the resistance is 4 ohms?

#18. At the time they took office, Ronald Reagan and James Buchanan were among the oldest U.S. Presidents. Reagan was 4 years older than Buchanan. The sum of their ages was 134. Determine Reagan's age and Buchanan's age at the time each man took office.

#19. Identify a pattern in the list of numbers and use the pattern to find the next number.

0, 5, 10, 15, \_\_\_\_\_

#20. Perform the indicated operations:  $(-3)(-4) \div (7-10)$

#21. A human brain contains  $3 \times 10^{10}$  neurons and a gorilla brain contains  $7.5 \times 10^9$  neurons. How many times as many neurons are in the brain of a human as in the brain of a gorilla?

#22. Rationalize the denominator:  $\sqrt{\frac{5}{6}}$

#23. Perform the indicated operation. Where possible, reduce the answer to lowest terms.

$$5 + (8 - 3)^2 - 16 \div 4 - 2$$

#24. The pressure of water on an object below the surface varies directly as its distance below the surface. If a submarine experiences a pressure of 25 pounds per square inch 60 feet below the surface, how much pressure will it experience 330 feet below the surface?

#25. Park rangers catch, tag and release 200 tule elk back into a wildlife refuge. Two weeks later, they observe a sample of 150 elk, of which 5 are tagged. Assuming that the ratio of tagged elk in the sample holds for all elk in the refuge, how many elk are there in the park?

#26. Simplify:  $5(3x - 2) + 7x$

#27. Estimate the answer. DO NOT USE A CALCULATOR. For a spring break vacation, a student needs to spend \$47.00 for gas, \$311.00 for food, and \$405.00 for a hotel room. If the student takes \$681.79 from savings, estimate how much more money is needed for the vacation.

#28. Identify a pattern in the list of numbers and then use the pattern to find the next number:

40, -20, -80, -140, \_\_\_\_\_

#29. The cost of renting a boat from Estes Rental is \$9 per 15 minutes. The cost from Ship and Shore Rental is \$20 per half-hour. If you plan to rent the boat for three hours, which business offers the better deal and by how much?

#30. Express 0.64 as a quotient of integers in lowest terms.

#31. Add  $-50 + 32$

#32. Solve and check the following equation:  $8x - 5(x - 2) = x + 26$

#33. The formula  $N = 3.5x + 58$  models the average mortgage loan,  $N$ , in thousands of dollars,  $x$  years after 1980. How many years after 1980 will the average mortgage loan be \$142 thousand? In which year will that be?

#34. Solve for y:  $2x + 4y = 8$ .

#35. Solve and check the following equation.  $3(2x - 4) = 9 - 3(x + 1)$

#36. Evaluate the following expression:  $7x^2 + 4x - 5$ ;  $x = -2$

#37. Perform the indicated operations:  $\sqrt{50} + \sqrt{32}$

#38. Consider the following procedure:

Select a number. Multiply the number by 4. Add 8 to the product. Divide the sum by 2.

Subtract 4 from the quotient.

Repeat this procedure for three numbers of your choice. Write a conjecture that relates the result of the process to the original number selected.

#39. Multiply and express the answer in decimal notation:  $(3 \times 10^8) (2.5 \times 10^{-4})$

#40. Perform the indicated operations. Where possible, reduce the answer to its lowest terms.

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

Match the following:

- A. Inductive Reasoning
- B. Deductive Reasoning
- C. Estimation
- D. Prime Number
- E. Composite Number
- F. Fundamental Theorem of Arithmetic
- G. Greatest Common Divisor of 2 or more Natural Numbers
- H. Least Common Multiple of 2 or more Natural Numbers
- I. Mixed Number
- J. Improper Fraction
- K. Reciprocal
- L. Rationalization of the Denominator
- M. Commutative Property of Addition
- N. Commutative Property of Multiplication
- O. Associative Property of Addition
- P. Associative Property of Multiplication
- Q. Distributive Property
- R. Algebraic Expression
- S. Equation
- T. Proportion
- U. Absolute Value
- V. Theorem
- W. Difference
- X. Product
- Y. Simplify

\_\_\_ Two numbers whose product is 1

\_\_\_ A combination of variables and numbers using the operations of addition, subtraction, multiplication, or division, as well as powers or roots

\_\_\_ A natural number greater than 1 that has only itself and 1 as factors

\_\_\_ The process of arriving at a general conclusion based on observations of specific examples.

\_\_\_ The result of subtraction

\_\_\_ The largest number that is a divisor (or factor) of all the numbers

\_\_\_ A statement that can be proved using deductive reasoning

\_\_\_ The process of arriving at an approximate answer to a question

\_\_\_ Two algebraic expressions joined by an equal sign

\_\_\_ To remove parenthesis and combine like terms in an algebraic expression

\_\_\_  $7(5+3) = 7(5) + 7(3)$

\_\_\_ The process of proving a specific conclusion from one or more general statements

\_\_\_ A natural number greater than 1 that is divisible by a number other than itself and 1

\_\_\_ A statement that says two ratios are equal

\_\_\_  $6 + 4 = 4 + 6$

\_\_\_ The result of multiplication

\_\_\_ The distance from 0 to a number on the line number

\_\_\_  $6(4) = 4(6)$

\_\_\_ Every composite number can be expressed as a product of prime numbers in one and only one way (if the order of the factors is disregarded)

\_\_\_ Process of rewriting a radical expression to remove the square root from the denominator without changing the value of the expression

\_\_\_  $7 + (4 + 3) = (7 + 4) + 3$

\_\_\_ The sum of an integer and a rational number, expressed without the use of an addition sign

\_\_\_  $3 \times (4 \times 5) = (3 \times 4) \times 5$

\_\_\_ A rational number whose numerator is greater than its denominator

\_\_\_ The smallest natural number that is divisible by all of the numbers