ALGEBRAIC WORD PROBLEMS
Pitt State Math Relays—2018

Place your answer in the appropriate blank on the answer sheet provided. Include units when applicable. Give answers in decimals (not fractions) to the nearest hundredth. There are 20 problems. You may use a calculator.

1. The perimeter of a square is 280 feet. How long is each side?

2. The sum of four times a number and 21 is 189. Find the number.

3. Anna will need 286 feet of fence to enclose her rectangular yard. If the length of her yard is 9 feet more than the width, what are the dimensions of the yard?

4. A house and lot together cost $50,000. The house costs seven times as much as the lot. How much does the house cost?

5. Eden is four times as old as Maia. Eighteen years from now Eden will be twice as old as Maia. How old is Eden now?

6. In the barnyard is an assortment of cows and chickens. There are 21 heads and 58 legs. How many chickens are there?

7. Find a number such that 81 less than twice the number is 39.

8. If $76.25 in simple interest is earned on a deposit of $1250 in one year, then what is the simple interest rate?

9. The cost of a car including tax is $26444.25. The tax rate is 9.5%. What is the cost of the car before tax?

10. A total of 94 cookies are to be given to Drew, Luke, and Noah. Drew is to get twice as many as Luke, and Luke is to get ten more than Noah. How many cookies will Noah get?

11. For the Super Bowl Party, Ally wants 20 pounds of party mix for a total of $41.25. To obtain the mixture, she will mix nuts that cost $2.70 per pound with pretzels that cost $1.20 per pound. How many pounds of pretzels should be used?

12. The time it takes to do a job varies inversely with the number of volunteers working on the job. If 10 volunteers could complete the job in 6 days, how many days would it take for 15 volunteers?

13. How much water should be added to 8 quarts of 90% antifreeze to get a 30% solution?

14. Simeon has twice as many dimes as quarters, amounting to $8.10 total. How many quarters does he have?

15. The sum of the squares of two consecutive positive, even integers is 1060. Find the 2 numbers.

16. The ratio of boys to girls in a class is 8:7. If the class has 60 students, how many are girls?

17. Nathaniel invests $4000, part at 9% and part at 7% annual interest. How much does he invest in each of these rates if he earns $302.60 in interest in 1 year?

18. Emma has an average (mean) of 63 on six 100-point tests. What will she need to make on the seventh test to have an average of 68?

19. The total receipts for a concert were $3903. Adult tickets were $15 and student tickets were $8. If a total of 312 tickets were sold, how many adult tickets were sold?

20. Twice the sum of two numbers is 64.   Three times the smaller number is 6 more than twice the larger number. Find the two numbers.