

There are **30** questions. Place your answer in the appropriate blank on the answer sheet provided. Include units when applicable. If your answer has more than 3 decimal places round it to the nearest thousandths. Do not give answers as fractions.

- 1) Three consecutive odd integers have a sum of 447. What is the product of the largest and smallest of these integers?
- 2) Three consecutive odd integers have a product of 103,635. What is the sum of the largest and smallest of these integers?
- 3) A box contains nickels, dimes, and quarters. The value of the coins is \$6.05. Half of the coins are quarters and the number of dimes is two more than twice the number of nickels. How many dimes are in the box?
- 4) A piece of cardboard is twice as long as it is wide. It is to be made into a box with an open top by cutting 3 cm squares from each corner and folding up the sides. Let  $x$  represent the length of the original piece of cardboard. Find the length of the original piece of cardboard,  $x$ , if the volume of the box is  $10,824 \text{ cm}^3$ .
- 5) The hypotenuse of a right triangle is 75 feet long. If the longer leg is 15 feet longer than the shorter leg, what is the length of the shortest side?
- 6) The sum of the lengths of the sides of a right triangle is 80 inches. The hypotenuse is 12 inches less than the sum of the lengths of the legs. What is the length of the hypotenuse?
- 7) In the barnyard is an assortment of cows and chickens. There are 72 heads and 232 legs. How many chickens are there?
- 8) The cost of a car including tax is \$30,543.93. The tax rate is 9.5%. What is the cost of the car before tax?
- 9) Jean invested part of her \$5,000 bonus in a certificate of deposit that paid 2.5% annual, simple interest, and the remainder in a mutual fund that paid 4.2% annual, simple interest. If her total interest for that year was \$172.60, how much did Jean invest in the mutual fund?
- 10) Find the product of the first ten positive integers.
- 11) Find the sum of the first 500 positive integers.
- 12) Pure acid is to be added to 120 grams of a solution that is 40% acid to obtain a new solution that is 75% acid. How many grams of 75% acid solution are there?
- 13) Suppose you drive a distance of 147 miles at a speed of 35 miles per hour. How many minutes does it take?
- 14) Two bicyclists, 42 miles apart, begin riding toward each other on a long straight avenue. One cyclist travels 15 miles per hour and the other 20 miles per hour. At the same time, Spot (a greyhound), starting at one cyclist, runs back and forth between the two cyclists as they approach each other. If Spot runs 38 miles per hour and turns around instantly at each cyclist, how far has he run when the cyclists meet?

- 15) Brand X copier advertises that its copiers run 22% longer between service calls than its competitor. If Brand X copiers run 46,360 copies between services, how many copies would the competitor run?
- 16) Suppose that the exchange rate is 0.748 US dollars per Canadian dollar. What would be the cost in Canada for a car valued at \$19,148.80 in the US?
- 17) Twice the sum of two numbers is 64. Three times the smaller number is 6 more than twice the larger number. What is the product of the two numbers?
- 18) The ratio of boys to girls in a class is 11:9. If the class has 60 students, how many are girls?
- 19) Tim and Kay can build a storage shed in 8 days. If Tim built it by himself, it would take him 12 days. How long would it take Kay to build the storage shed if she worked alone?
- 20) If the Nina can sail across the Atlantic in 8 months and the Pinta can make the voyage in 11 months, how long would the crossing take if they sailed together?
- 21) A man has \$18,000 to invest. He invests \$6,875 at 7% for one year and he invests \$3,525 at 3.5% for two years. How much does he have left to invest?
- 22) A 102-foot rope is cut into four pieces. Each successive piece is three feet less than twice as long as the previous one. What is the length on the longest piece?
- 23) A rectangular garden has a perimeter of 108 feet. Its length is 5 feet more than three times its width. What is the length of the garden?
- 24) If two angles are supplementary and one is 16 degrees larger than the other, what is the measure of the smaller angle?
- 25) A student has scored a 77, 86, 91, and 97 on his tests. What score he must make on the last so his average is 90?
- 26) The total receipts for a concert were \$3903. Adult tickets were \$15 and student tickets were \$8. If 312 tickets were sold, how many adult tickets were sold?
- 27) If a car averages 65 mph for 3 hours and 30 mph for 20 minutes, how far will it have gone?
- 28) One day Sarah earned \$36.75 tutoring mathematics and she earned \$22.25 tutoring physics. After work, she bought a cd for \$9.62. How much did she earn that day?
- 29) The average salaries of Tom, Jay, and Kay is \$35,000 per year. If Tom earns \$5,000 more than Kay, and Jay earns one half as much as Tom, how much does Kay earn?
- 30) A rectangular field 1,320 ft. long and 660 ft. wide has a concrete walkway of uniform width on its border. If there are 13,909 square feet of concrete in the walkway, what is the width of the walkway?

**Thank you for competing.**