2013 KCATM Word Problem test - 9th and 10th grade Name _____

School _____ Gr _____

Please read the question carefully and choose the best answer:

1. A store owner wants to use a code system to label his inventory. How many different codes are possible if each cod label has three letters (A-E) and five digits (0-9)?
   a. 25,000
   b. 12,500
   c. 25, 500,000
   d. 12,500,000

2. A chemist has a bottle containing 80 ml of 10% HCL solution and a bottle of 25% HCL solution. She wants a solution that is 20% HCL. How much of the 25% solution should be added to the 10% solution so that a 20% solution is created?
   a. 120 ml
   b. 140 ml
   c. 160 ml
   d. 180 ml

3. Six minus three times the difference of a number and five is equal to four times the number. What is the number?
   a. 1
   b. 3
   c. 5
   d. 7

4. Two angles are complementary. If one angle is 15 degrees more than twice the other angle, what are the angles?
   a. 35 and 55 degrees
   b. 40 and 50 degrees
   c. 15 and 75 degrees
   d. 25 and 65 degrees

5. A vending machine has 12 ounce and 16 ounce drinks. The 12 ounce drinks are $.50 and the 16 ounce drinks are $1.00. If 3600 drinks were sold and the total sales were $2225, how many of each size drink were sold?
   a. 850 16 ounce drinks and 2750 12 ounce drinks
   b. 850 16 ounce drinks and 2570 12 ounce drinks
   c. 580 16 ounce drinks and 2570 12 ounce drinks
   d. 580 16 ounce drinks and 2750 12 ounce drinks

6. Sandy's grade in her math class is calculated by the average of four tests. To receive an A for the course, she needs an average of at least 89.5. If her current test scores are 84, 92, and 94, what range of scores can she make on the last test to receive an A for the course.
   a. Her score must be more than 90%
   b. Her score must be more than 85%
   c. Her score must be more than 88%
   d. Her score must be more than 98%

7. Two cars are traveling toward each other on the same road. One car is traveling at 50 mph and the other at 55 mph. If the two cars are 315 miles apart, how long until they meet?
   a. 2 hours and 30 minutes
   b. 3 hours
   c. 3 hours and 30 minutes
   d. 4 hours

8. Five decreased by three times a number is forty-one. What is the number?
   a. 15
   b. -15
   c. 12
   d. -12

9. A rowing crew can row 1 mile against the current in 15 minutes that they can row 1 mile with the current in 6 minutes. Find the team's speed in still water.
   a. 5 mph
   b. 6 mph
   c. 7 mph
   d. 8 mph

10. Two sizes of candles were sold at a store. The larger ones sell for $15 each and the smaller ones sell for $10. One day the number of small candles sold was four more than twice the number of large candles, and the total sales was $845. How many of each size were sold?
    a. 50 large, 23 small
    b. 53 large, 20 small
    c. 23 large, 50 small
    d. 20 large, 53 small

11. At a fast food restaurant, one burger, one order of fries and one drink cost $5; three burgers, two orders of fries and two drinks costs $12.50; and two burgers, four orders of fries and three drinks costs $14. Find the cost of one burger.
    a. $1.50
    b. $2.00
    c. $2.50
    d. $3.00

12. The measure of one angle of a triangle is three times the measure of a second angle, and the second angle is 5 degrees less than the measure of the third. Find the measure of each angle of the triangle.
    a. 105, 35 and 40 degrees
    b. 105, 45 and 30 degrees
    c. 85, 45 and 50 degrees
    d. 95, 40, and 45 degrees

13. A total of $8000 is invested in three stocks, which paid 4%, 6% and 7% dividends, respectively, in one year. The amount invested in the stock that paid 7% dividends is $1500 more than the amount that returned 4% dividends. If the total dividends in one year were $475, find the amount invested in each stock.
    a. $2500 at 4%, $3500 invested at 6% and $2000 at 7%
    b. $2000 at 4%, $3500 invested at 6% and $2500 at 7%
    c. $3500 at 4%, $2000 invested at 6% and $2500 at 7%
    d. $2000 at 4%, $2500 invested at 6%, and $3500 at 7%

14. Sam purchased three general admission tickets and two student tickets for $55, and Sally purchased two general admission tickets and four student tickets for $50. Find the cost of one student ticket.
    a. $3
    b. $4
    c. $5
    d. $6

15. The sum of the squares of three consecutive positive even integers is 200. Find the integers.
    a. 2,4,6
    b. 4,6,8
    c. 6,8,10
    d. 8,10,12

16. The product of two consecutive natural numbers is 342. Find the numbers.
    a. 18,19
    b. 19,20
    c. 17,18
    d. 16,17

17. A rectangular room is 3 feet longer than it is wide. If the area of the room is 88 square feet, find the dimensions of the room.
    a. 4 ft by 22 ft
    b. 10 ft by 8.8 ft
    c. 12 ft by 8 ft
    d. 8 ft by 11 ft

18. Jamie went on a trip to visit a friend who lives 20 miles away. The trip there took 1/3 of an hour and the trip back home took ¼ of an hour. What was his average rate for the trip?
    a. 65.4 mph
    b. 56.4 mph
    c. 46.5 mph
    d. 68.6 mph

19. A northbound car and a southbound car meet each other on a highway. The northbound car is traveling 40 mph and the southbound car is traveling 60 mph. How much time elapses from the time they pass each other until they are 20 miles apart?
    a. 15 min
    b. 14 min
    c. 13 min
    d. 12 min

20. Fred has two more nickels than dimes and the total value of the nickels and dimes is $1.30. How many of each type of coin does he have?
    a. 8 dimes and 10 nickels
    b. 10 dimes and 6 nickels
    c. 6 dimes and 14 nickels
    d. 12 dimes and 2 nickels

21. With both the cold water and the hot water faucets open, it takes 9 minutes to fill a bathtub. The cold water faucet alone takes 15 minutes to fill the tub. How long would it take to fill the tub with the hot water faucet alone?
    a. 19.5 minutes
    b. 20.5 minutes
    c. 21.5 minutes
    d. 22.5 minutes

22. Ann and Jerry have agreed to make quilts for a charity auction. If Ann makes a quilt alone in 25 days and Jerry makes a quilt alone in 35 days, how long would it take them to make a quilt together? (rounded to the nearest day)
    a. 13 days
    b. 14 days
    c. 15 days
    d. 16 days

23. The distance a car travels varies directly with the amount of gas it carries. On a trip, a car travels 156 miles using 6 gallons of gas. How many gallons are required to travel 234 miles?
    a. 8 gallons
    b. 9 gallons
    c. 10 gallons
    d. 11 gallons

24. Three pieces of lumber are connected to form a right triangle. The length of one side is 3 feet and the other is 4 feet. Find the length of the remaining side.
    a. 7 feet
    b. 6 feet
    c. 5 feet
    d. 4 feet

25. A severe thunderstorm warning is issued for an area covering 14,400 square miles. What is the length of each side of the square area?
    a. 72 miles
    b. 102 miles
    c. 120 miles
    d. 122 miles