Thailand 1st Elementary Mathematics International Contest 2003 (TEMIC)

September 8, 2003

Rose Garden Aprime Resort, Nakhon Pathom, Thailand.

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1. M sold some apples and received an amount of money. If M had sold 10 more apples for the same amount of money, the price of one apple would be 2 baht less than the original price. If M had sold 10 less apples for the same amount of money, the price of one apple would be 4 baht more than the original price.
   (Note: *Baht is the Thai Currency*)

   a) How many apples did M sell ?

   b) What was the price of one apple?

2. Bag A has twice the number of beads in bag B. 12% of beads in bag A are removed and transferred to bag C. 20% of beads in bag B are removed and transferred to bag C. After removing and transferring beads, there are now 488 beads in bag C which is 22% more than the original number of beads in bag C. How many beads were there in the bag A at the beginning?

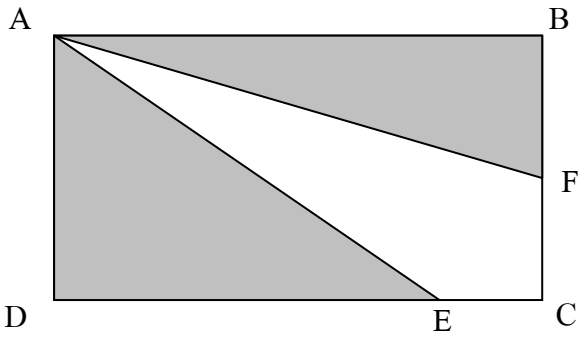
3. City P is 625 kilometers from City Q. M departed from City P at 5:30 a.m. travelling at 100 kilometers per hour, and arrived at City Q. Fifteen minutes after M left, N departed from City Q and arrived at City P travelling at 80 kilometers per hour. At what time did M and N meet together?

4. Alan has 80% more stamps than Billy. Billy has $\frac{3}{5}$ of the number of Charlie's stamps. If Billy gave 150 stamps to Charlie, then Charlie would now have three times the number of Billy's remaining stamps. What is the total number of stamps they have altogether?

5. A boat is 50 kilometers away from the port. The boat is leaky, so water flows into the boat at the rate of 2 tons per 5 minutes. If there were 90 tons of water in the boat, the boat would sink. If there is a pump in the boat, pumping out 12 tons of water per hour, what should be the minimum speed of the boat in km/h to avoid the boat from sinking?

6. X is a 2-digit number whose value is $\frac{13}{4}$ of the sum of its digits. If 36 is added to X, the result will contain the same digits but in reverse order. Find X.

7.



Given; ABCD is a rectangle

BF = FC

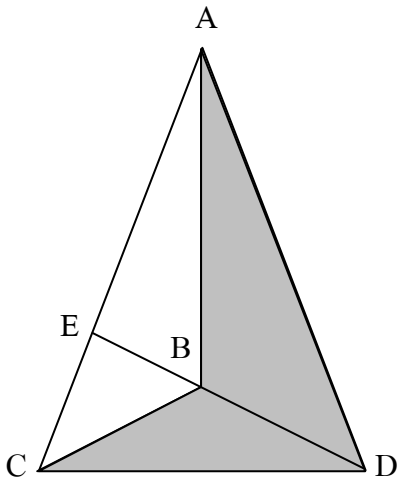
DE = 6EC

What is the ratio between the unshaded area and the shaded area?

8. Find all 2-digit numbers such that when the number is divided by the sum of its digits the quotient is 4 with a remainder of 3.

9. Calculate the result of $1^2 - 2^2 + 3^2 - 4^2 + \ldots + 2001^2 - 2002^2 + 2003^2$.

10.



In the figure above, $\frac{EB}{BD} = \frac{1}{2}$ and the area of the shaded part is 42 cm^2. Find the area of ABC.

11. A, B and C worked together and received a total wage of 52400 baht. A received 125% of B's wage, but 90% of C's wage.
(Baht = Currency of Thailand)

a) Determine who received more: B or C?

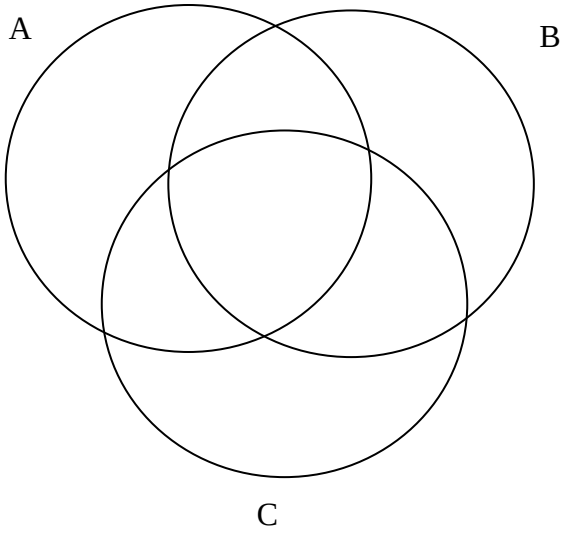
b) What is the difference between the wages of B and C?

12. There are 20 red marbles, 30 white marbles and some blue marbles in a box. If you draw one marble from the box, the probability or chance of drawing one blue marble is $\frac{9}{11}$. How many blue marbles are there in the box?

13. When 31513 and 34369 are each divided by a certain three-digit number, the remainders are equal. Find this remainder.

14. Fill in **all** the numbers below into circles A, B, C, such that all numbers in circle A are divisible by 5, all numbers in circle B are divisible by 2, all numbers in circle C are divisible by 3.

1749, 3250, 7893, 2025, 1348, 2001, 112, 102, 48, 2030, 930, 207, 750, 1605



15. Fill the digits 1, 2, 3, 4, 5, 6, 7, 8, 9 into the boxes
□□□□□ × □□□ × □ , so that the expression will produce the **largest** product. (Each digit can be used only once)