Accelerated math. Homework 4.



Problems marked with * are more difficult.

 Can the expression below be a true statement, if letters are replaced with numbers from 1 to 9 (different letters correspond to different numbers).

$$f \cdot l \cdot y = i \cdot n \cdot s \cdot e \cdot c \cdot t$$

- 2. The product of three digits of three-digit number ABB equals to two-digit number AC, the product of these two digits equal C. What is this tree digit number different letters correspond to different digits, same letters correspond to same digits)?
- 3. Two buses leave from the same bus station following two different routes. For the first one it takes 48 minutes to complete the roundtrip route. For the second one it takes 1 hour and 12 minutes to complete the round trip route. How much time will it take for the buses to meet at the bus station for the first time after the have departed for their routes at the same time?
- 4. Mary has a rectangular backyard with sides of 48 and 40 yards. She wants to create square flower beds, all of equal size, and plant different kind of flowers in each flower bed. What is the largest possible size of her square flower bed?
- 5. Compute by the most convenient way:

 $\left(\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}\right)+\left(\frac{2}{3}+\frac{2}{4}+\frac{2}{5}\right)+\left(\frac{3}{4}+\frac{3}{5}\right)+\frac{4}{5}.$

6. Do the prime factorization of number 1260.

Write the set A = P(1260) (P(1260) – set of prime factors of number 1260).

Find several possible devisors of 1260.

Do the prime factorization of number 1350.

Write the set B = P(1350) (P(1350) – set of prime factors of number 1350).

Find several possible devisors of 1350.

Write the set $C = A \cap B$

Find several common devisors for 1260 and 1350. Find GCD

Write the set $D = A \cup B$. Find several common multiples of 1260 and 1350. Find LCM.

7. There are 4 children in the family. They are 5, 8, 13, and 15 years old and their names are Julia, Peter, Mary and Ellen. What is the age of each of them if one of the girls goes to kindergarten, Julia is older than Peter, and sum of ages of Julia and Mary is divisible by 3?



8. What number should be placed instead of "?"

9. Continue the spiral curve. Hint- each element of the line is a quoter of a circle. Draw the picture in your notebook, use a compass and a ruler!



10. How many segments are there on the picture below? How many triangles?



11. Name all lines, segments and rays on the picture below. (Example : segment [BC])



12. A goat is tied to a pole (or 2 poles) with a rope of length 4m. What shape it will graze?





Draw a picture in your notebook using 1 cm for 1m. The length of the rope is 4 m, the length of the string on the second picture is 10 m. Use a ruler and a compass!