

Junior Circle 2, Problem Set 25

1. Ron was walking to school from home. Halfway, he realized that he forgot to take his backpack. He walked back home, grabbed his backpack, and walked back to school. He came to school 20 minutes later than usual.
How long does it take Ron to walk from home to school if he does not backtrack?

2. Once upon a time, Prince Simon wanted to marry beautiful princess Lilli, a daughter of the vicious king Dadon. The king brought Simon into a room with three doors leading out of it. The princess was behind one of the doors, a hungry tiger behind another, and the last room was empty. A sign was posted on each door:
 - "**The Princess or the Tiger is here,**" stated the sign on the first door.
 - "**The Tiger is here,**" stated the sign on the second door.
 - "**This room is empty,**" was the sign on the third door.



The king offered Simon to open one of these doors. If Simon encounters a tiger, he will die; if he faces the princess, he'll marry her. The princess, who wanted to marry Simon, passed him a note stating that all signs are false. Help the prince open the right door.

3. A slow-walking robot is programmed to walk along a path that has the shape of an equilateral triangle with side length of 5 meters. The robot has its pet goat tied on a 3-meter leash. The goat keeps eating all grass within its reach, as the robot moves. Draw the goat's grazing area.



4. Calculate, using mental math techniques we learned (check in your handout):

$35^2 =$

$65^2 =$

$85^2 =$

$24 \times 26 =$

$39 \times 31 =$

$52 \times 58 =$

$83 \times 87 =$

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5. Dennis, Bear, and Vlad got some nice mechanical pencils. Vlad gave Bear and Dennis as many pencils as each of them already had. Then Bear gave Dennis and Vlad as many pencils as each of them had by this moment. Finally, Dennis gave the other two boys as many pencils as each of them had by this moment. It turned out that each boy ended up with 8 pencils. How many pencils did each boy have in the beginning?



6. The “Alien Dance” hip hop dance group starts out with 25 boys and 19 girls. Every week 2 more boys and 3 more girls join the dance group. After how many weeks will there be the same number of boys and girls in the dance group?



7. List the following in order of increasing size (smallest first). Your answer should consist of 4 letters in the correct order.

a) $\frac{5+3}{12-10} \times 100$

b) The number of inches in 10 yards

c) The total number of days in 13 consecutive months

d) The number of coins in a collection of equal numbers of nickels and quarters worth a total of \$63.90

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8. After “Who will shout louder” tournament all 13 participants came to a party. They all shake hands with each other thanking for the interesting contest. How many handshakes had occurred?



9. Suzanne adds three different EVEN counting numbers and correctly gets a sum of 106. If the smallest of the three numbers is 14, what is the largest any of the numbers could be?

10. If one bear can prevent a forest fire in 33 minutes, how many minutes would it take 3 bears to prevent 4 forest fires?



11. There are 25 kids starting the first grade this fall. 12 of them can read, 8 can write, and 9 of them can add. Besides, 4 kids can read and write, 5 kids can read and add and 3 of them can write and add. Only two students can read, write and add. How many students can neither read nor write nor add?