Practice 1.4 (October 11)

You have to fill this poll https://goo.gl/forms/taeaUUBDWUVVTVIi1 before Monday 10, 10 pm.

1. Compute the following divisions using the ABN algorithm and the alternative algorithm proposed after ABN, in slide 44. Be sure that you understand how the algorithms work.

   a) $97 \div 4$ b) $835 \div 37$

2. Write three "generic" consecutive multiples of 17 and show that their sume is always a multiple of 3.

3. If an even number is multiplied by any natural number, the result is always even.

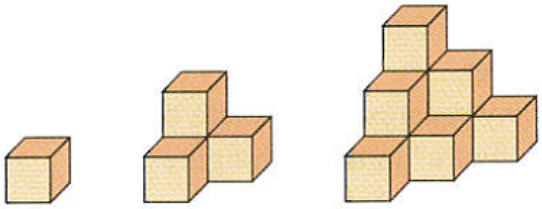
   a) Look for an argument showing why this is true that could be presented in Primary 3.

   b) Write a proof using algebraic language.

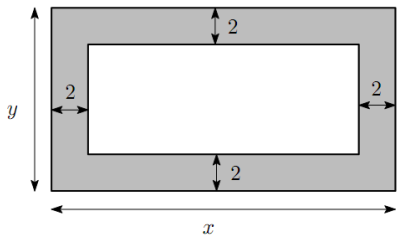
4. A biker starts from A and moves at a speed of 16 km/h. 90 minutes later a second biker starts also from A, going after the first biker, and moving at a speed of 23 km/h. If the first biker suffers a flat tire and has to stop for 15 minutes when he was at 30 km of A, at what distance from A do the bikers meet?

   They meet 65,71 km away from A.

5. How many cubes are there in the fifth figure of the following pattern? And in the tenth one? (Cubes are not glued to each other, so there are cubes that are hidden in the picture).



6. Find an expression for the area of the shaded region in the figure



More on the back

7. We have a cube (similar to Rubik's cube) but made of $3 \times 3 \times 3$ small cubes. We paint the exterior faces and then we take apart the small cubes.

   a) How many of them have 3 painted faces?

   b) How many of them have 2 painted faces?

   c) How many of them have 1 painted faces?

   d) How many of them have no painted face?

   Repeat the problem with a $10 \times 10 \times 10$ cube and with a $n \times n \times n$ cube.