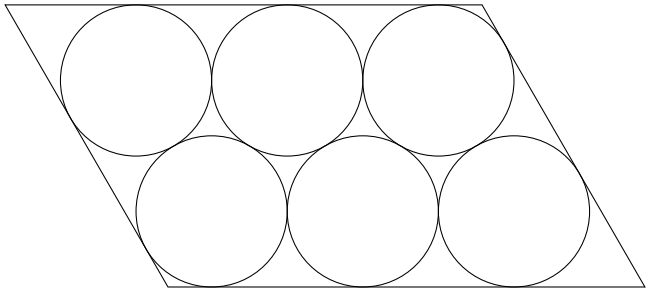
MATHEMATICS ENRICHMENT CLUB.
Problem Sheet 3, May 21, 2018

1. The perimeter of a base of a rectangular brick with integer sides is 18 cm, whilst its volume is 42 cm^3. What is its height?

2. A palindromic number is a `symmetrical' number which reads the same forwards as backwards. For example, 55, 101 and 8668 are palindromic numbers. There are 90 four-digit palindromic numbers.

   How many of these four-digit palindromic numbers are divisible by 7?
   (AMC 2009 Senior Division Q21)

3. What is the area, in square centimetres, of the parallelogram that would t snugly around 6 circles, each of radius 3 cm, as shown in the diagram?



   (AMC 2009 Senior Division Q22)

4. Suppose that a triangle has sides a, b and c such that $a + b + c = 2$.

   (a) Show that (1 a)(1 b)(1 c)c