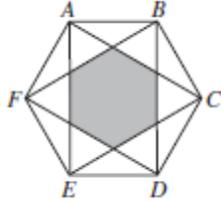11. The shaded region is a regular hexagon enclosed inside another regular hexagon *ABCDEF*.
The area of the shaded region is 12.
What is the area of *ABCDEF*?

____36____ 11

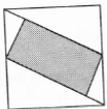12. How many positive whole numbers less than 2016 have digit sum of 10? ____119____ 12

17. The weight of Canadian coins (in grams) are as follows: 5 cents - 3.95g, 10 cents - 1.75g, 25 cents - 4.40g, 1 dollar - 7.00g, and 2 dollars - 7.30g. You put on a scale some coins (at least one coin of each of the above denomination), and find out that their total combined weight is 64.40g. What is the maximum possible value of all of the coins combined, in dollars ($), correct to 2 decimal places? ____13.60____ ($) 17

18. The square in the figure below is divided into a shaded rectangle surrounded by 4 triangles. The measure of the side of the outer square is 2. Two corners of the shaded rectangle bisect two sides of the outer square. What is the ratio of the perimeter of the shaded rectangle to the perimeter of the square? Provide

your answer as $\dfrac{a\sqrt{b}}{c}$ where a and b are primes, and c is an integer.

$\dfrac{3\sqrt{5}}{10}$ 18

19. The sum of all the members of the set $\{1,2,3,4,5,6,7,8,9\}$ is 45. For how many different subsets of this set is the sum of all the members of the equal to 9? (Note that $\{7\}$, $\{1,5\}$, and $\{2,5,7\}$ are subsets while $\{2,2,5\}$ is not). ____8____ 19

Quiz to win free entry to 2020 ELMACON

Students should send their answers to the questions on this handout to elmacon@pims.math.ca along with their name, school and grade, by February 15th to be entered into a to prize draw to win a free entry to ELMACON 2020.

One student from each grade will be drawn (at random) from the entries with the correct answers and will win a free entry to ELMACON 2020

In the event that no students in a grade answer all 5 questions correctly the draw will be made from the students with the most correct answers.