

# BRITISH COLUMBIA SECONDARY SCHOOL MATHEMATICS CONTEST, 2014

## Junior Preliminary

Wednesday, April 2

- The value of  $(2014 + 2012 + 2010 + \cdots + 2) - (2013 + 2011 + 2009 + \cdots + 1)$  is:  
(A) 1                      (B) 2                      (C) 1006                      (D) 1007                      (E) 1008
- Triangle  $ABC$  is isosceles with  $AB = AC$ . If  $BC = 12$ , and the area of triangle  $ABC$  is 48, then the length of side  $AB$  is:  
(A) 10                      (B)  $6\sqrt{2}$                       (C) 6                      (D)  $12\sqrt{2}$                       (E) 9
- Twenty five consecutive integers add to 50. The largest integer in the sum is:  
(A) 10                      (B) 12                      (C) 14                      (D) 20                      (E) 24
- While playing *Minecraft*, Lin stacks cubical sandstone blocks to form a pyramid. Each level of the pyramid is formed by placing lines of blocks adjacent to each other, with each line having one less block than the next, with the last line having only one block. The longest line on each level contains one less block than the longest line on the level below it. (See the diagram.) If the longest line of the bottom level of the pyramid contains 10 blocks, then the total number of blocks in the pyramid is:  
(A) 220                      (B) 200                      (C) 110  
(D) 55                      (E) 10
- The graph of  $y = 10(x + 1)(x - 3)$  intersects the  $x$ -axis at two points  $P$  and  $Q$ . The length of the line segment  $PQ$  is:  
(A) 20                      (B) 2                      (C) 40                      (D)  $\frac{2}{5}$                       (E) 4
- A group of 40 students has an average age of 12 years. A group of 60 parents has an average age of 40 years. The average age of the combined group of these students and parents is:  
(A) 26                      (B) 28.8                      (C) 30                      (D) 32                      (E) 36
- A set of  $N$  objects is to be distributed amongst 8 boxes so that it is certain that there is a box containing at least 3 of these objects. The smallest value of  $N$  is:  
(A) 8                      (B) 9                      (C) 16                      (D) 17                      (E) 18
- If 5 workers can dig 5 holes in 5 hours, the time that it will take 50 workers to dig 200 holes is:  
(A) 1                      (B) 5                      (C) 20                      (D) 100                      (E) 200



