

BRITISH COLUMBIA COLLEGES

Junior High School Mathematics Contest, 2001

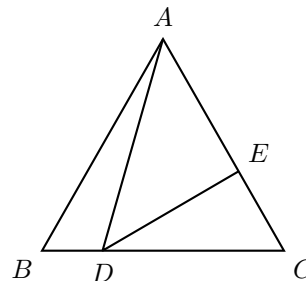
Final Round – Part B

Friday May 4, 2001

1. Find the smallest 3-digit integer which leaves a non-zero remainder when divided by any of 2, 3, 4, 5, or 6 but not when divided by 7.
2. Assume that the land within two kilometres of the south pole is flat. There are points in this region where you can travel one kilometre south, travel one kilometre east along *one* circuit of a latitude, and finally travel one kilometre north, and thus arrive at the point where you started. How far is such a point from the south pole?
3. Cafe de la Peche offers three fruit bowls:
 - Bowl A has two apples and one banana;
 - Bowl B has four apples, two bananas, and three pears;
 - Bowl C has two apples, one banana, and three pears.

Your doctor tells you to eat exactly 16 apples, 8 bananas and 6 pears each day. How many of each type of bowl should you buy so there's no fruit left over? Find all possible answers. (The numbers of bowls must be non-negative integers.)

4. In the triangle shown, $\angle BAD = \alpha$, $\overline{AB} = \overline{AC}$ and $\overline{AD} = \overline{AE}$. Find $\angle CDE$ in terms of α .



5. In the multiplication below each of the letters stands for a distinct digit. Find all values of *JEEP*.

$$\begin{array}{r} JEEP \\ \times JEEP \\ \hline BEEBEEP \end{array}$$