

**MASSACHUSETTS MATHEMATICS LEAGUE  
CONTEST 2 - NOVEMBER 2012  
ROUND 6 PLANE GEOMETRY: ANGLES, TRIANGLES AND PARALLELS**

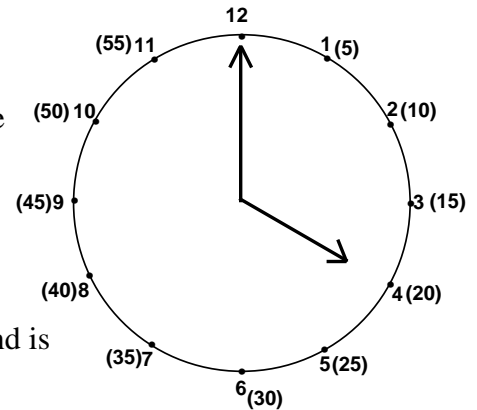
**ANSWERS**

- A) \_\_\_\_\_ °
- B) \_\_\_\_\_ °
- C) \_\_\_\_\_ °

- A) In a pentagon *MAGIC*,  $\angle s M, A$  and,  $G$  are congruent and  $\angle s I$  and  $C$  are congruent.  
All angle measures are positive integers.  
Determine the smallest possible measure (in degrees) of  $\angle C$ .

- B) On an analog clock, what is the degree measure of the acute angle between the minute and hour hand at 4:21 AM?

Note: In the diagram, the numbers 1 - 12 represent hours.  
The time in the diagram is 4:00 (AM or PM).  
The numbers in parentheses indicate minutes past the hour. For example, at 4:15, the minute hand points at the 3 and the hour hand is pointing somewhere between the 4 and the 5.



- C)  $\overline{TA} \parallel \overline{OP}$ . In convex hexagon *POSTAL*, all interior angles have integer measure and  $m\angle L > m\angle TAL$ . Compute the maximum sum of the measures of the largest and smallest angles in *POSTAL*. Reminder: The diagram is not necessarily drawn to scale.

