

Minnesota State High School Mathematics League

2019-20 Meet 1, Individual Event B

Question #1 is intended to be a quickie and is worth 1 point. Each of the next three questions is worth 2 points. Place your answer to each question on the line provided. You have 12 minutes for this event.

1. In *Figure 1*, $ABCDEFGH$ is a cube. What is $m\angle EBD$?
(Hint: The answer is not 90° .)

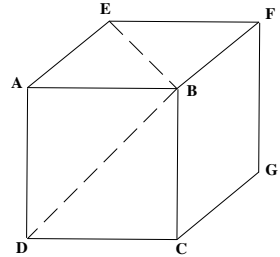


Figure 1

2. In *Figure 2*, determine exactly the sum of the angles labelled 1 through 10.

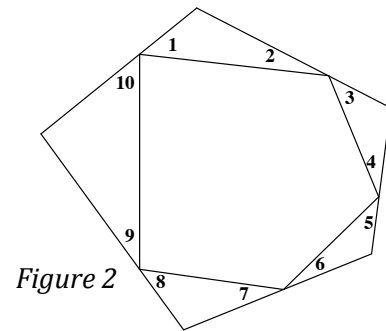


Figure 2

3. The interior angles of a convex polygon increase in the following linear progression: 100° , 108° , 116° , Determine the number of sides of the polygon.

4. The sides of right triangle ABC are a , $a + 7d$, and $a + 9d$ with a and d being integers. What is the smallest possible perimeter of $\triangle ABC$?

Name: _____

Team: _____