

MBMT Geometry Round — Abel

March 8, 2026

Full Name _____

Student ID Number _____

**DO NOT BEGIN UNTIL YOU ARE
INSTRUCTED TO DO SO.**

This round consists of **8** questions. You will have **30** minutes to complete the round. Each question is *not* worth the same number of points. Questions answered correctly by fewer competitors will be weighted more heavily. Please write your answers in a reasonably simplified form.

- _____ 1. Alice has a square cookie of side length 8 inches, and Bill has a rectangular cookie of length 4 inches and unknown width. If the area of Alice and Bill's cookies are the same, what is the width of Bill's cookie?
- _____ 2. Evan is running along the perimeter of a circle of radius 1. How far does he have to run to complete 12 laps around the circle?
- _____ 3. Four points A , B , C , and D , lie on a line in some order and satisfy $BC = 4$, $AC = 6$, and $BD = 12$. What is the largest possible value of AD ?
- _____ 4. Square $ABCD$ has side length 3, and points E and F are chosen on segment $\overline{BC}$ and $\overline{CD}$ such that $CE = CF = 1$. What is the area of triangle $\triangle AEF$?
- _____ 5. Sam, David, and Bill are standing at points S , D , and B around a circle with diameter $\overline{BD}$. They are standing in such a way that $BD = 13$ and $SD = 5$. What is the shortest distance Bill has to run if he wants to run directly to Sam and then directly to David?
- _____ 6. Let S be a hexagon of side length 2. Andy draws a flower-shape onto the hexagon by constructing a circle of radius 1 at each vertex of P . What is the perimeter of Andy's new closed flower?
- _____ 7. Equilateral triangle $\triangle ABC$ has a side length of 1. A regular pentagon $BCDEF$ is constructed on the exterior of $\triangle ABC$. In degrees, what is the measure of angle $\angle DAF$?
- _____ 8. Triangle $\triangle ABC$ has $AB = 16$ and $AC = 17$. There exists a point P outside $\triangle ABC$ such that $AP = 16$, $CP = 17$, and $\overline{AC}$ is perpendicular to $\overline{PB}$. What is the area of quadrilateral $PABC$?