

High School Math Problems
2017
Week 11
Problem

Let x , y , and m be real numbers such that

$$\begin{cases} x + y = 2m - 1 \\ x^2 + y^2 = m^2 + 2m - 3 \end{cases}.$$

For what value(s) of m does $x \cdot y$ achieve its maximum and minimum values, if they exist?