

NMSU MATH PROBLEM OF THE WEEK

Solution to Problem 3

Spring 2022

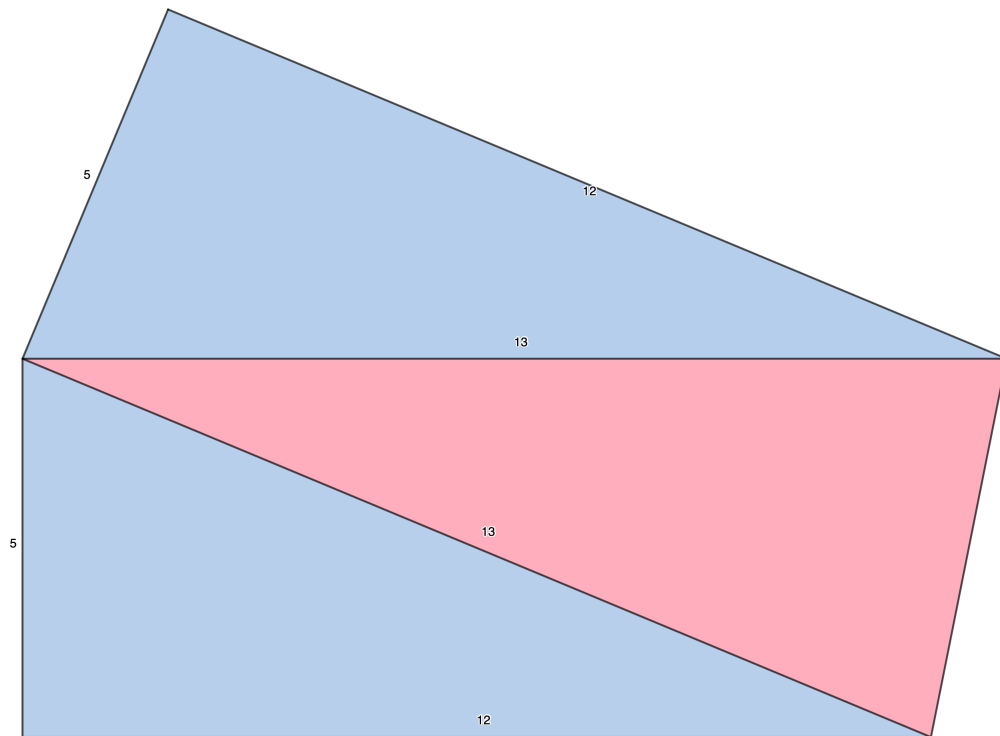
Problem 3.

A 5×25 sheet of paper is folded along a straight line so that two diagonally opposite vertices meet, and a pentagon is formed. Find the area of this pentagon.

Solution.

Answer: The pentagon has area 92.5

Since $5^2 + 12^2 = 13^2$ and $12 + 13 = 25$, it is easy to see that the resulting pentagon has the following shape; in this figure the numbers are the lengths of the sides.



Each of the blue triangles has area $\frac{12 \times 5}{2} = 30$, whereas the red triangle has area $\frac{13 \times 5}{2} = 32.5$. Therefore the pentagon has area $30 + 30 + 32.5 = 92.5$