



Math Olympiad and Problem Solving Programs

E130 - Honors Geometry Problem Solving

Problem Set 3.1 - Exterior Angle Theorem

Name:

Date:

1.

2.

3.

4. Since ABC and ADE are isosceles triangles, $\angle ABD = \angle ECD$ and $\angle ADE = \angle AED$. Call $\angle ABD = z$ and $\angle ADE = m$. Observe that $m = x + z$ and $m + x = z + 30$. Substitute m in the second equation: $(x + z) + x = z + 30 \Rightarrow 2x = 30 \Rightarrow x = \boxed{15}$.

5.