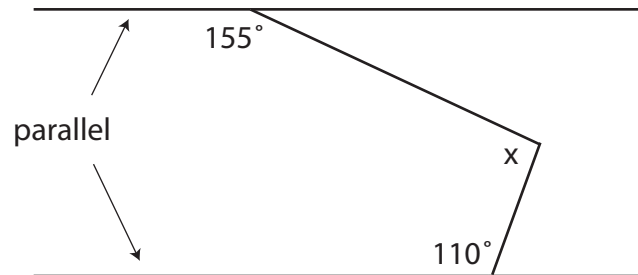
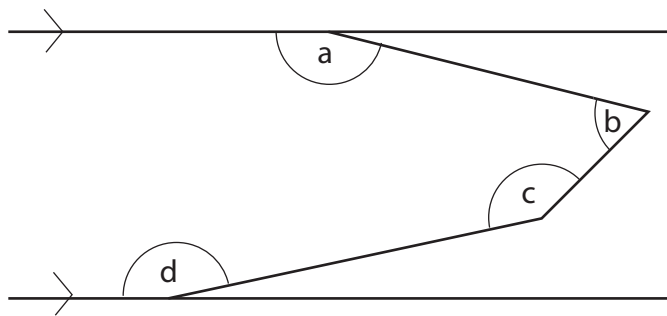


MATH 5030, Spring 2009
Angle Problems

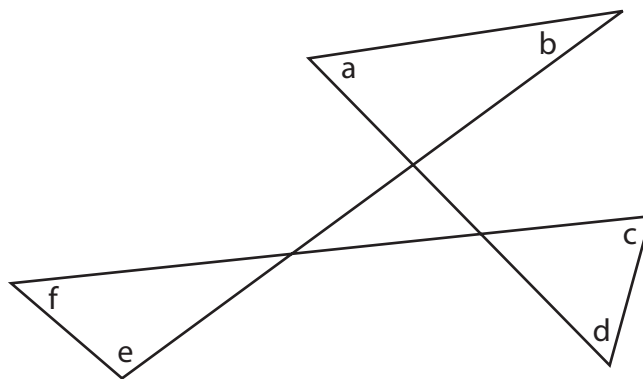
1. Determine angle x without measuring. Explain your reasoning.



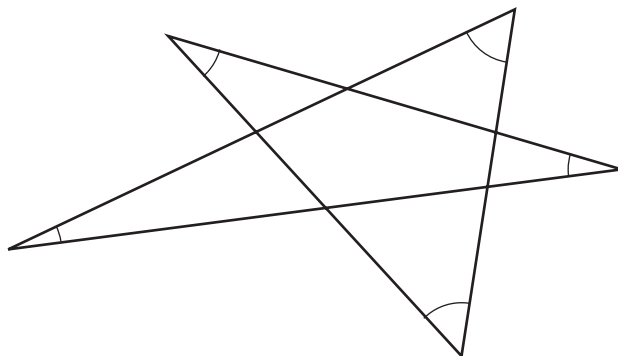
2. Given that the lines marked with arrows are parallel, determine the sum of the angles, $a + b + c + d$, (without measuring any angles) and explain your reasoning.



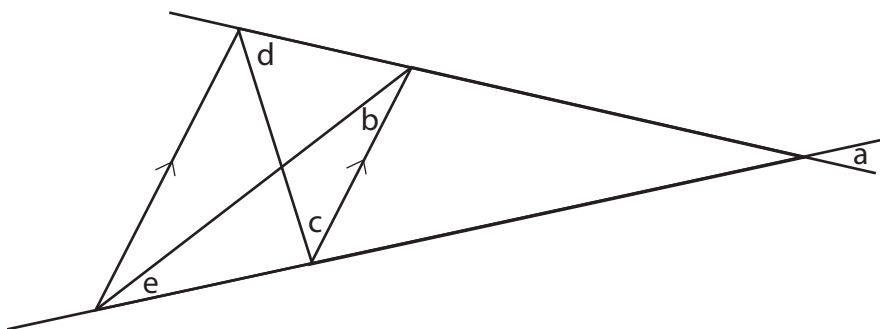
3. Determine the sum of the labeled angles in the figure below (without measuring). Explain your reasoning.



4. Determine the sum of the angles at the star points (the angles that are labeled) without measuring. Explain your reasoning.



5. Determine the sum $a + b + c + d + e$ of the angles in the figure below (without measuring). The two line segments labeled with arrows are parallel. Explain your reasoning.



6. Determine the sum of the labeled angles in the figure below (without measuring). Explain your reasoning.

