

Triangles and Quadrilaterals

Triangle Relationships

**The sum of the angles in a triangle is 180°

**You can find the number of degrees in any polygon by seeing how many triangles you can fit in a polygon by connecting the vertices.

Examples:

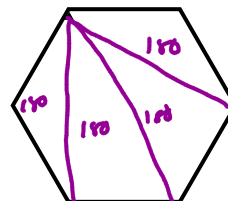
1. What is the sum of the angles of a quadrilateral? 360°

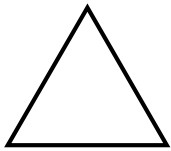


2. What is the sum of the angles of a pentagon? 540°

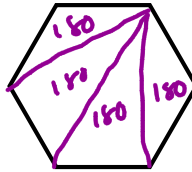


3. If a hexagon is regular (this means all sides and all angles are equal), what is the measure of one angle? 120°





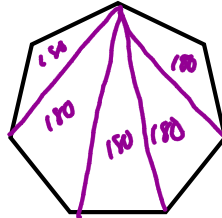
$$180^\circ$$



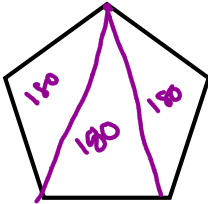
$$720^\circ$$



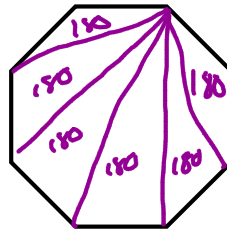
$$360^\circ$$



$$900^\circ$$

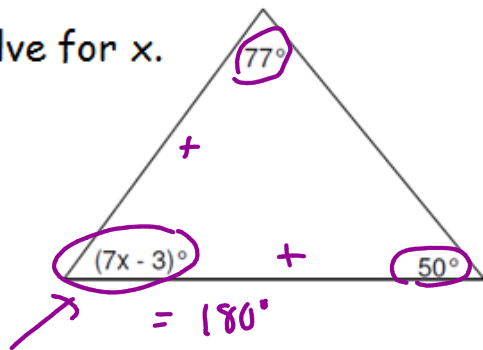


$$540^\circ$$



$$1080^\circ$$

4. Solve for x.



$$77 + 7x - 3 + 50 = 180$$

$$7x + 124 = 180$$

$$\underline{- 124 \quad - 124}$$

$$\frac{7x}{7} = \frac{56}{7}$$

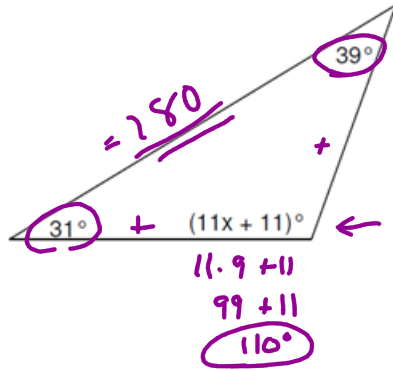
$$\boxed{x = 8}$$

$$7 \cdot 8 - 3$$

$$56 - 3 = 53^\circ$$

$$77 + 50 + 53 = 180^\circ \checkmark$$

5. Solve for x.



$$31 + 39 + 11x + 11 = 180$$

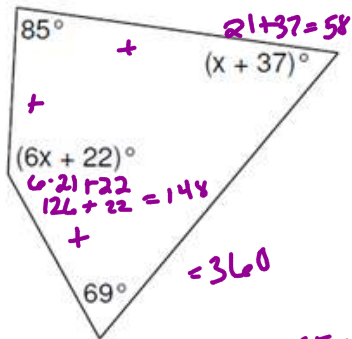
$$11x + 81 = 180$$

$$-81 \quad -81$$

$$\frac{11x = 99}{11 \quad 11}$$

$$x = 9$$

6. Solve for x.



$$85 + 6x + 22 + 69 + x + 37 = 360$$

$$7x + 213 = 360$$

$$-213 \quad -213$$

$$\frac{7x = 147}{7 \quad 7}$$

$$x = 21$$

$$85 + 58 + 69 + 148 = 360 \checkmark$$

$$\triangle = 180^\circ \quad \square = 360^\circ$$