

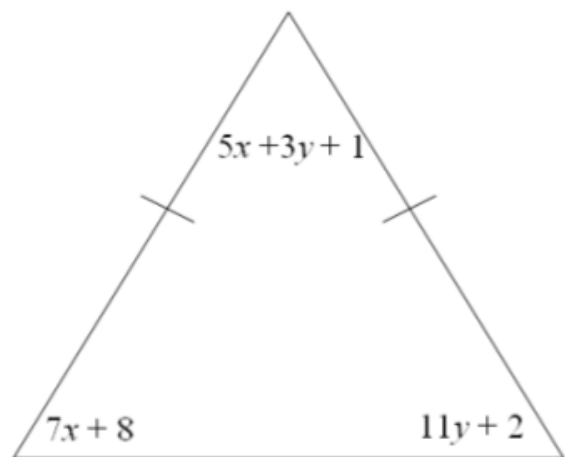
1. The measure of each interior angle of a regular polygon is twenty less than three times the square of the measure of its exterior angle. How many sides does the polygon have?

45 sides

2. $\triangle EFG$ below is isosceles. Find x and y .

$$x = \frac{355}{46}$$

$$y = \frac{251}{46}$$



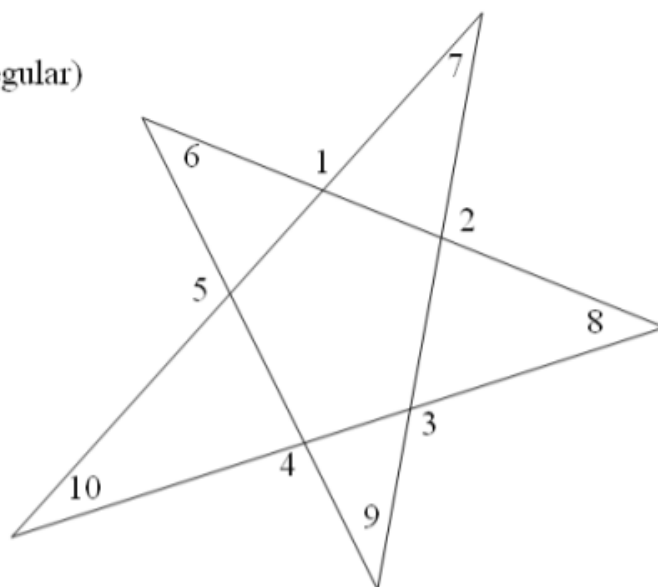
3. Use the star below to find the following:
(Note the pentagon in the center is not regular)

a) Find the sum of the \angle 's 1-5

540

b) Find the sum of the \angle 's 5-10

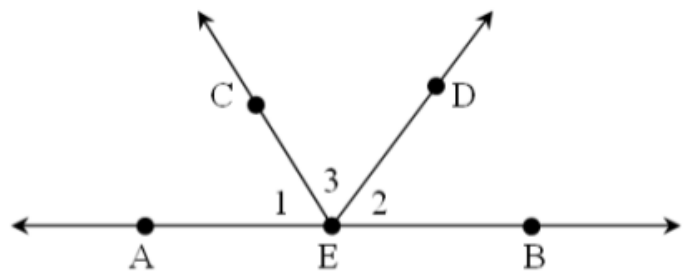
180



4. Write a paragraph proof.

Given: \overrightarrow{EC} bisects $\angle AED$
 \overrightarrow{ED} bisects $\angle CEB$

Prove: $\angle 1 \cong \angle 2$



\overrightarrow{EC} bisects $\angle AED$, \overrightarrow{ED} bisects $\angle CEB$ because it is given.

So, $\angle 1 = \angle 3$ and $\angle 3 = \angle 2$ by the def. of \angle bisector.

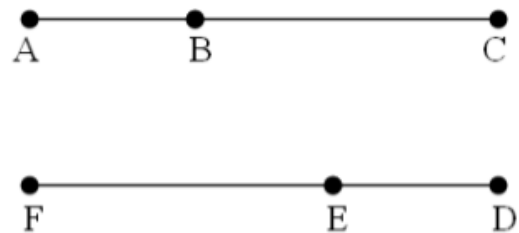
Then $\angle 1 = \angle 2$ by substitution.

Therefore, $\angle 1 \cong \angle 2$ by the def. of \angle bisector

5. Write a paragraph proof.

Given: $\overline{AC} \cong \overline{FD}$; $\overline{AB} \cong \overline{ED}$

Prove: $\overline{BC} \cong \overline{FE}$



It is given that $\overline{AC} \cong \overline{FD}$ and $\overline{AB} \cong \overline{ED}$

Then $AC = FD$ and $AB = ED$ by the def. of \cong seg.

$AC = AB + BC$ and $FD = FE + ED$ by the seg. add. post.

$AB + BC = FE + ED$ by substitution

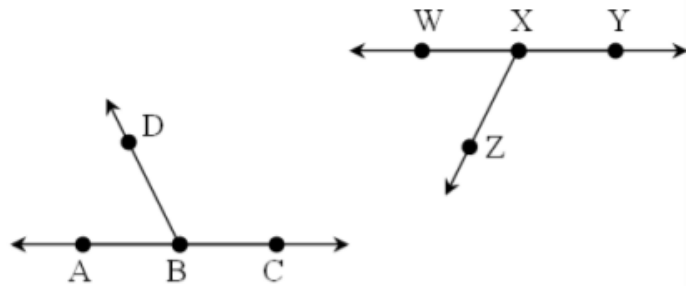
$ED + BC = FE + ED$ by substitution

$BC = FE$ by subtraction

$BC \cong \overline{FE}$ by def. \cong seg.

6. Write a paragraph proof.

Given: $\angle ABD$ and $\angle CBD$ form a linear pair.
 $\angle YXY$ and $\angle WXZ$ form a linear pair.
 $\angle ABD \cong \angle YXZ$



Prove: $\angle CBD \cong \angle WXZ$

It is given that $\angle ABC$ and $\angle CBD$ form a linear pair

It is also given that $\angle ABC$ and $\angle CBD$ form a linear pair and $\angle ABD \cong \angle YXZ$

$\angle ABD = \angle YXZ$ by def. of \cong angles

$\angle ABD + \angle CBD = 180$, $\angle WXZ + \angle YXZ = 180$ by the \angle addition post.

$\angle ABD + \angle CBD = \angle WXZ + \angle YXZ$ by substitution

$\angle YXZ + \angle CBD = \angle WXZ + \angle YXZ$ by substitution

$\angle CBD = \angle WXZ$ by subtraction

$\angle CBD = \angle WXZ$ by def. of \cong angles