

Practice with Interior and Exterior Angles of Polygons

Formulas:

Interior Angle Sum of a Regular Polygon:

$$(n-2) 180$$

Exterior Angle of a Regular Polygon:

$$\frac{360}{n}$$

1. Five angles of a hexagon measure 100° , 110° , 120° , 130° , 140° . Find the measure of the sixth angle.

$$720^\circ$$

$$720 - 600 = 120$$

$$\boxed{120}$$

2. The measure of one interior angle of a polygon is 144° . How many sides does it have?

option 1

$$180(n-2) = 144n$$

$$144n = 180n - 360$$

$$-36n = -360 \quad \boxed{n=10}$$

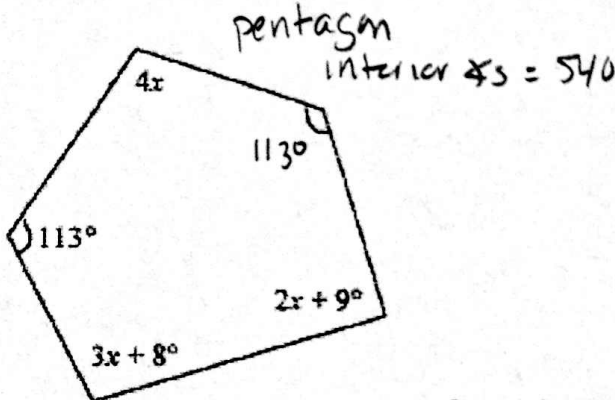
option 2

$$180 - 144 = 36$$

$$\frac{360}{36} = 10$$

10 sides

3. Find the value of x:



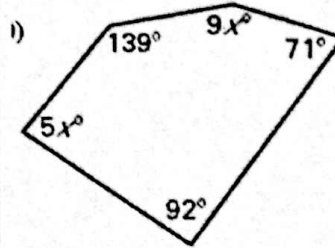
$$4x + 113 + 2x + 9 + 3x + 8 + 113 = 540$$

$$9x + 243 = 540$$

$$9x = 297$$

$$\boxed{x=33}$$

4. Find the value of x:

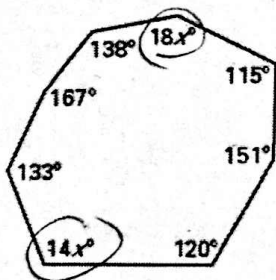


$$5x + 139 + 9x + 71 + 92 = 540$$

$$14x + 302 = 540$$

$$\boxed{x=17}$$

5. Find the value of x



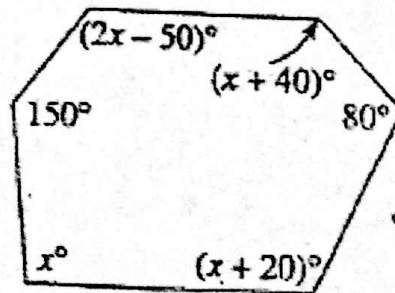
Octagon = 1080

$$32x + 824 = 1080$$

$$32x = 256$$

$$\boxed{x=8}$$

6. Find the value of x.



$$2x - 50$$

$$x + 40$$

$$+ 80$$

$$x + 20$$

$$= x$$

$$150$$

$$5x + 240 = 720$$

$$5x = 480$$

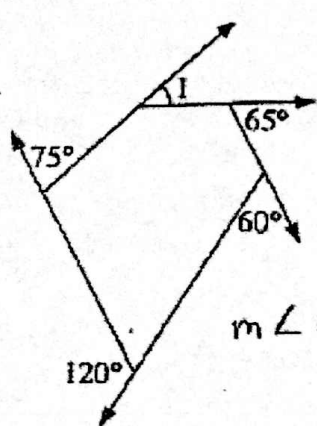
$$\boxed{x=96}$$

7. What is the measure of each interior angle and each exterior angle of a regular 17-gon?

$$\frac{(17-2)180}{17} = 158.8$$

$$\frac{360}{17} = 21.2$$

8. Find the $m\angle 1$

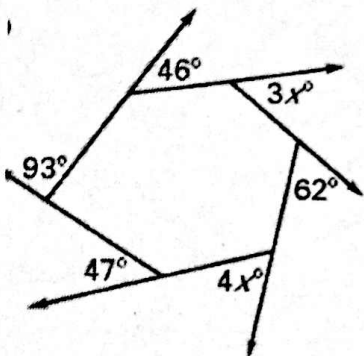


$$65 + 60 + 120 + 75 = 320$$

$$360 - 320 = 40$$

$$m\angle 1 = \underline{40}$$

9. Find the value of x .

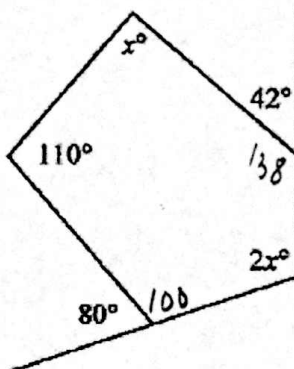


$$7x + 248 = 360$$

$$7x = 112$$

$$\boxed{x = 16}$$

10. Find the value of x :

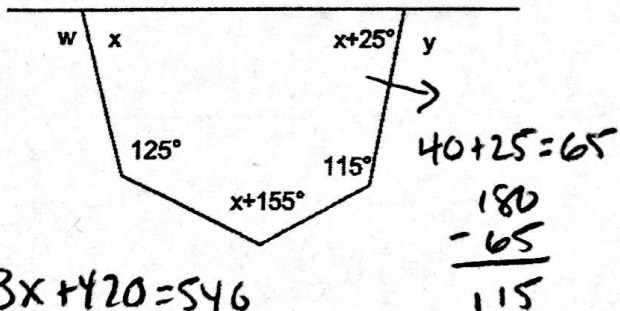


$$3x + 348 = 540$$

$$3x = 192$$

$$\boxed{x = 64}$$

11. Find w and y :



$$3x + 420 = 540$$

$$3x = 120$$

$$\boxed{x = 40}$$

$$\boxed{w = 140}$$

$$\boxed{y = 115}$$

$$40 + 25 = 65$$

$$\begin{array}{r} 180 \\ - 65 \\ \hline 115 \end{array}$$

12. What is the exterior angle sum of a 500-gon?

$$\boxed{360^\circ}$$