Geometry _____

6.1 Angles of Polygons _____   _____

Find the sum of the measures of the interior angles of each convex polygon.

1) dodecagon   2) 15-gon

The measure of an interior angle of a regular polygon is given. Find the number of sides.
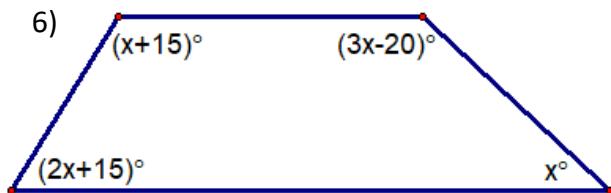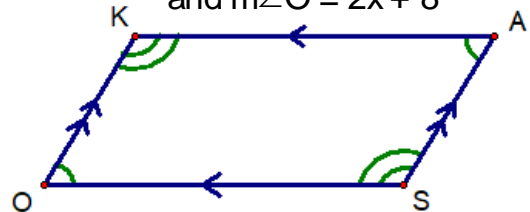
3) 144   4) 156   5) 160

Find the measure of each interior angle using the given information.

6)

$(x+15)°$ $(3x-20)°$

$(2x+15)°$ $x°$

7) quadrilaterial KAOS
   with $m\angle K = 6x - 4$
   and $m\angle O = 2x + 8$

K   A

O   S

Find the measure of an interior and an exterior angle given the number of sides for a regular polygon.

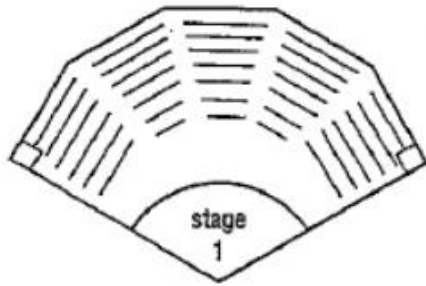8) 8   9) 10   10) 18

11) **Crystallography** – Crystals are classified according to seven crystal systems. The basis of the classification is the shapes of the faces of the crystal. Turquoise belongs to the triclinic system. Each of the six faces of turquoise is in the shape of a parallelogram. Find the sum of the measures of the interior angles of one such face.

12) In the Uffizi Gallery in Florence, Italy there is a room built by Buontalenti called La Tribuna. This room is shaped like a regular octagon. What angle do consecutive walls make with each other?

13) Archeologists unearthed parts of two adjacent walls of an ancient castle. They knew from ancient texts that the castle was in the shape of a regular polygon, but the number of sides was unknown. Some said 6, others 8, and some even said 50. Determine from the illustration how many sides the castle really had.

14) A theater floor plan is shown in the figure. The upper five sides are part of a regular dodecagon.

Find $m\angle 1.$