7.4 Problem Set A

1 Find the measure of an exterior angle of each of the following equiangular polygons.

    a A triangle   **c** An octagon   **e** A 23-gon

2 Find the measure of an angle of each of the following equiangular polygons.

    a A pentagon   **c** A nonagon   **e** A 21-gon

3 Find the number of sides an equiangular polygon has if each of its exterior angles is

    a 60°   **b** 40°   **c** 36°   **d** 2°   **e** $7\frac{1}{2}°$

4 Find the number of sides an equiangular polygon has if each of its angles is

    a 144°   **b** 120°   **c** 156°   **d** 162°   **e** $172\frac{4}{5}°$

7 In an equiangular polygon, the measure of each exterior angle is 25% of the measure of each interior angle. What is the name of the polygon?

Problem Set B

10 The sum of the measures of the angles of a regular polygon is 5040. Find the measure of each angle.

11 The sum of a polygon's angle measures is nine times the measure of an exterior angle of a regular hexagon. What is the polygon's name?

12 What is the name of an equiangular polygon if the ratio of the measure of an interior angle to the measure of an exterior angle is 7:2?

13 Tell whether each statement is true Always, Sometimes, or Never (A, S, or N).

a If the number of sides of an equiangular polygon is doubled, the measure of each exterior angle is halved.

b The measure of an exterior angle of a decagon is greater than the measure of an exterior angle of a quadrilateral.

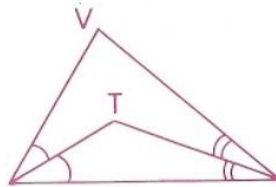**c** A regular polygon is equilateral.

d An equilateral polygon is regular.

e If the midpoints of the sides of a scalene quadrilateral are joined in order, the figure formed is equilateral.

Problem Set C

16 Given: $105 < m\angle T < 145$;
an equiangular polygon
can be drawn with $\angle T$
as one of the angles.
Find: The set of possible values of $m\angle V$

17 We shall call the figure to the right a regular semioctagon. (What do you think that means?)
If $m\angle E = 3x + 3y + 9$ and $m\angle A = 2x + y - 4\frac{1}{2}$, what are the values of x and y?