Geometry: Review of Polygons, Area, and Angles   Name_____ Hr:_____
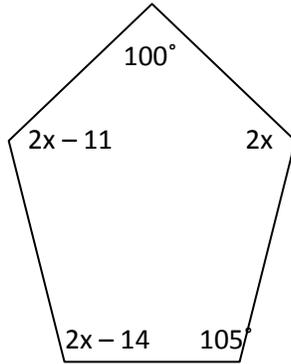
CONCEPT: The SUM of <u>interior angles</u> of any Polygon may be found by (n - 2) * 180°.
CONCEPT: The SUM of <u>exterior angles</u> of any Polygon is exactly 360°.
CONCEPT: Regular Polygons have all sides congruent, all angles congruent.
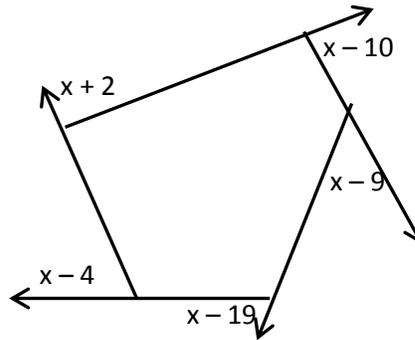
<u>**Find the value of x.**</u>   <u>**Find the value of x.**</u>

1.   2.

100°

2x – 11   2x

2x – 14   105

x – 10

x + 2

x – 9

x – 4

x – 19

X = _____   X = _____

3. Find each for a figure with 18 sides: **4. Find each for a REGULAR figure with 15 sides:**

Interior angle sum:_____   Each interior angle:_____

Exterior angle sum:_____   Each exterior angle:_____

5. Label the features . Choices include: altitude, apothem, Hito, hypotenuse, radius, right angle, and side (edge)

c. _____

a._____

b._____

d.) _____

f.) _____

e.) _____
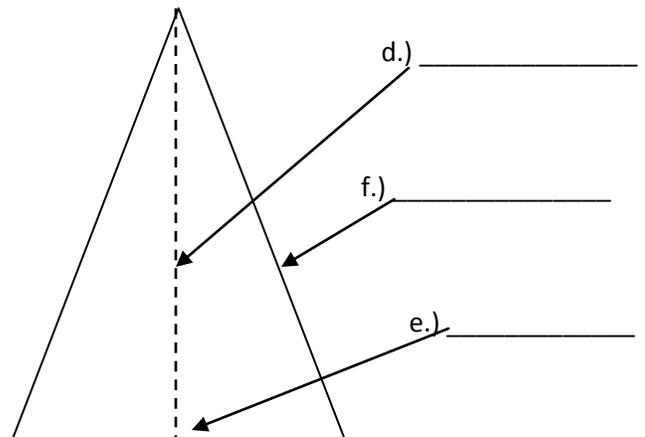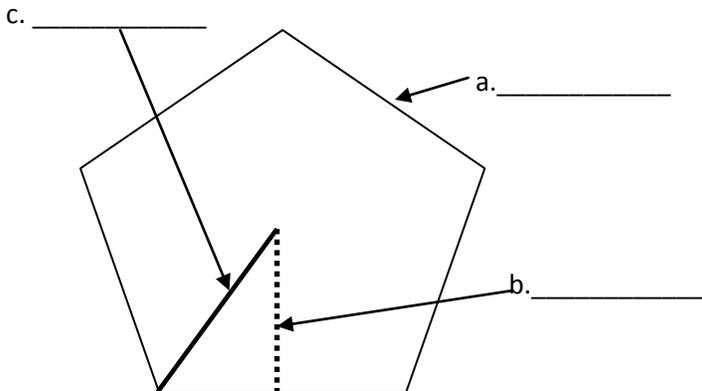
6.) AREA of Regular Polygons can be found by breaking them up into _____.

You then need to find the _____ in one of the triangles. One way to do this is to use the central angle sum of

360° and then divide by _____ to find a central angle. Next, you can

draw in the apothem that _____ this angle you just found into _____.

To find other angles, you can use the fact that the apothem (altitude) always meets the base at a _____° angle, and

ALL triangles must sum to _____° when you add their three interior angles. Your goal is to find the AREA of one

Triangle, by calculating, AREA = ½ * _____ * _____.   You can always find missing sides of any right

triangle by using _____, _____, and _____ ratios. Once the AREA of one triangle is determined, you

can multiply by _____ to get the TOTAL AREA of the POLYGON.   the end

Find the area of each REGULAR POLYGON. An enlarged-view Triangle is provided to help SHOW WORK!
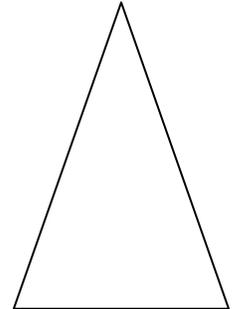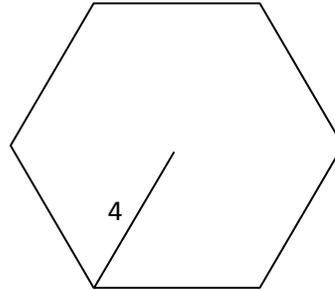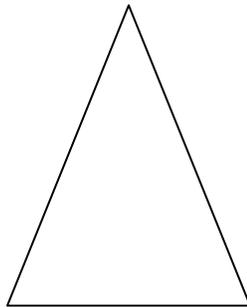
7.)

100

8.)

4

9.)

7
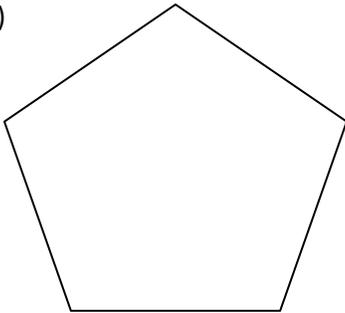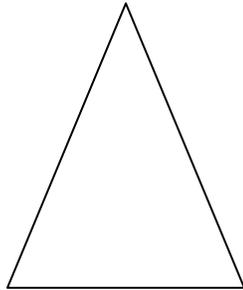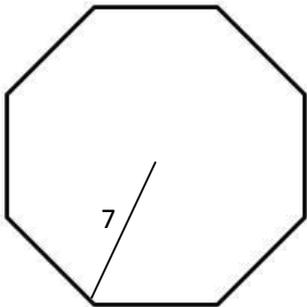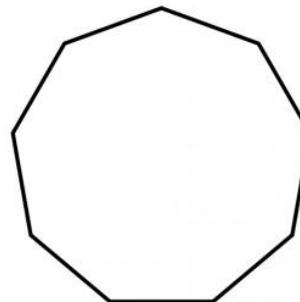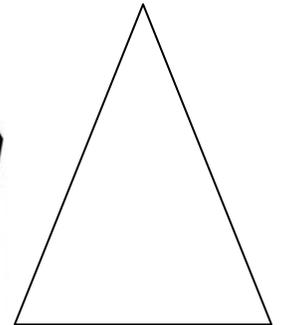
10.)

2

11.) What is the area of a regular Tetracontagon (40-sider), with apothem length of 5 inches?