Name **Key**   Date_____ Pd ____

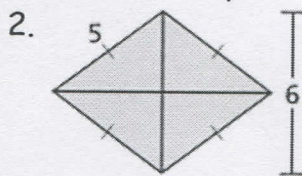## 11.3 Areas of Polygons Shaded Regions CYU

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Area of kite or rhombus	1	2	
Vocabulary terms	4 - 6		
Area of a regular polygon & central ∠	7	8	
Area of shaded region of regular polygon			9 - 12

Find the area of the kite or rhombus. Show the set up.
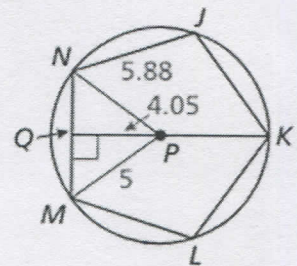
1.

19
38

361 u²

2.

5
6
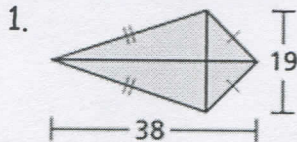
24 u²

Use the diagram to answer the following questions.

3. Identify the center of polygon JKLMN.   **P**

4. Identify a central angle of polygon JKLMN. **∡MPN**

5. What is the radius of polygon JKLMN? **5u = PM**
   <u>PM</u>

6. What is the apothem of polygon JKLMN? **QP = 4.05u**
   <u>QP</u>

Find the measure of a central angle of a regular polygon with the given number of sides. Round answers to the nearest tenth of a degree, if necessary.
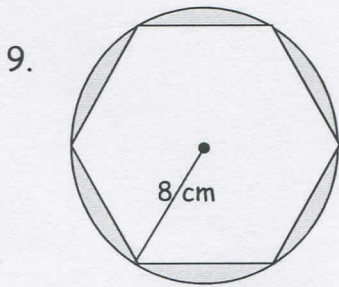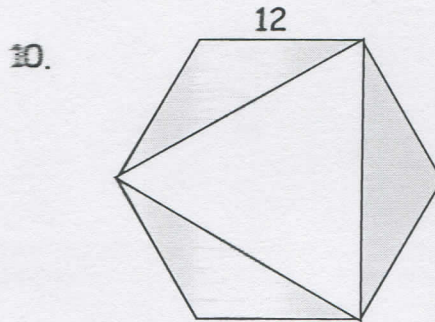
7. 18 sides

20°

8. 7 sides

51.4°

Find the area of each shaded region. Show your set up. Give the exact and approximate to the thousandths when appropriate. Do not forget units.
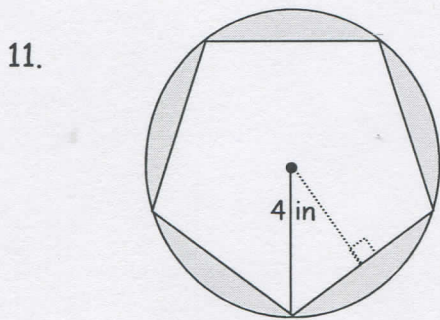
9.

8 cm
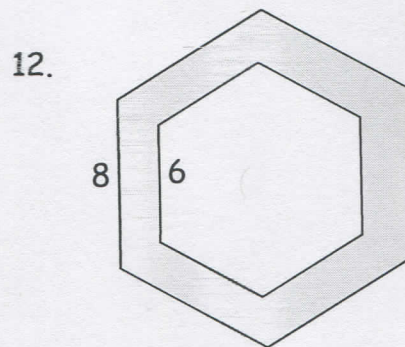
$$= 64\pi - 96\sqrt{3} \ cm^2$$
$$\approx 34.785 \ cm^2$$

10.

12

$$= 49\pi - 98 \ m^2$$
$$\approx 55.938 \ m^2$$

11.

4 in

$$= 16\pi - 80(\sin 54)(\cos 54) \ in^2$$
$$\approx 12.223 \ in^2$$

12.

8   6

$$= 100 - 25\pi \ cm^2$$
$$\approx 21.460 \ cm^2$$