|  |  |
| --- | --- |
| What you need to know… | * The \_\_\_\_\_\_\_\_\_\_\_ of a \_\_\_\_\_\_\_\_\_\_\_ polygon is related to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ from the \_\_\_\_\_\_\_\_\_\_\_\_\_ to a \_\_\_\_\_\_\_\_\_\_\_.
* The \_\_\_\_\_\_\_\_\_\_\_ of a \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ is the distance from the center to a \_\_\_\_\_\_\_\_\_\_\_\_.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the perpendicular distance from the center to a side.

 |
| Area of a regular polygon | A= |
| Problem 1:Find the area of the regular decagon. |  |
| Problem 2:Find the area of the regular hexagon. Round to the nearest millimeter. |   |

Application

Find the perimeter and area of each regular polygon. Leave your answers in simplest radical form.

1. 2.

3. Find the perimeter and area of the regular pentagon. (Hint: you will need to use trigonometry)



4. Comprehension: Why is the radius of a regular polygon greater than the apothem? (hint: think about what you know about right triangles)