

*Remember Special Right Triangles.

Name: _____

Date: _____

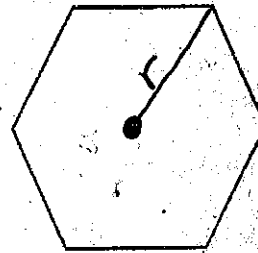
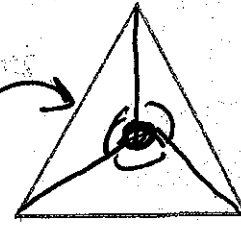
Block: _____

Area of Regular Polygon

Examples/notes

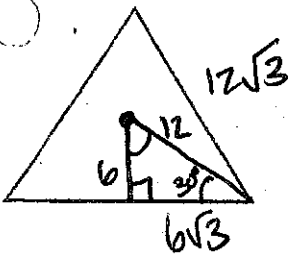
VOCAB for finding the area of regular polygons

Central Angle	angle whose vertex is the center $\frac{360}{n}$
Apothem ⊥ to a side	line segment from center to midpt of one of its sides
Radius	distance from center to vertex
Perimeter	distance around figure
Area of Regular Polygon	$A = \frac{aP}{2}$

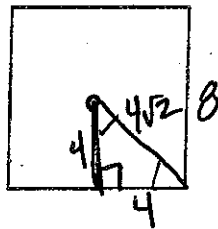


EX 1: Label the following information for each polygon.

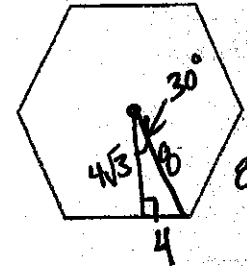
A. $a=6$ $s=12\sqrt{3}$ $r=12$



B. $a=4$ $s=8$ $r=4\sqrt{2}$

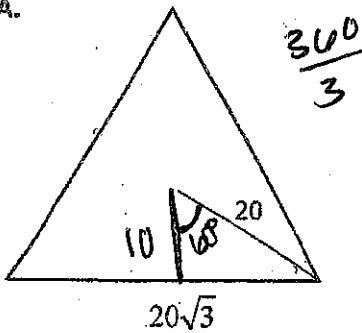


C. $a=4\sqrt{3}$ $s=8$ $r=8$

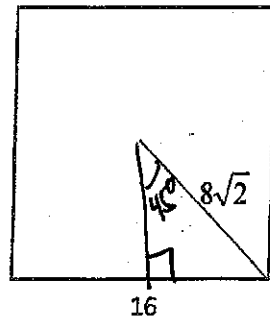


EX 2: Find the following information.

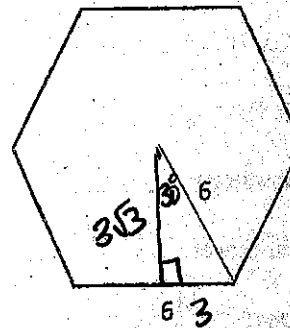
A.



B.



C.



Central Angle: 120°

Apothem: 10

Central Angle: 90°

Apothem: 8

Central Angle: 60°

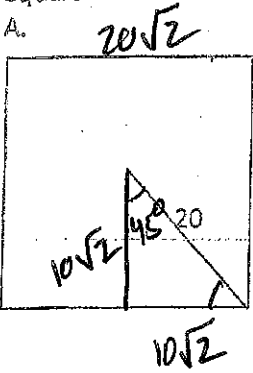
Apothem: 3√3

$$\frac{360}{6}$$

EX 3: Finding the area of a regular polygon.

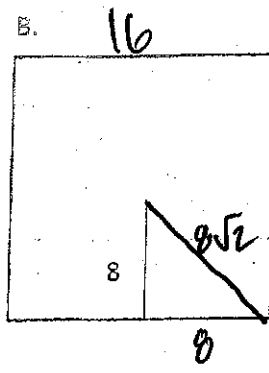
Square

A.



Number of Sides:	<u>4</u>
Central Angle:	<u>90°</u>
Side Length:	<u>20√2</u>
Radius:	<u>20</u>
Apothem:	<u>10√2</u>
Perimeter:	<u>80√2</u>
Area:	<u>1600</u>

B.

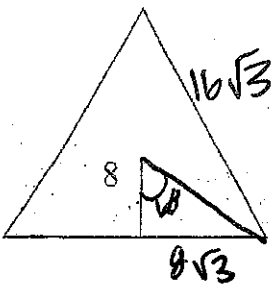


Number of Sides:	<u>4</u>
Central Angle:	<u>90°</u>
Side Length:	<u>16</u>
Radius:	<u>9√2</u>
Apothem:	<u>8</u>
Perimeter:	<u>64</u>
Area:	<u>256</u>

$$A = \frac{4 \cdot 8 \cdot 64}{2}$$

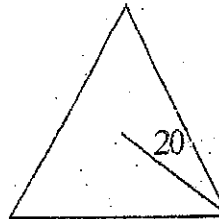
Equilateral Triangle:

C.



Number of Sides:	<u>3</u>
Central Angle:	<u>120°</u>
Side Length:	<u>16√3</u>
Radius:	<u>16</u>
Apothem:	<u>8</u>
Perimeter:	<u>48√3</u>
Area:	<u>192√3</u>

D.

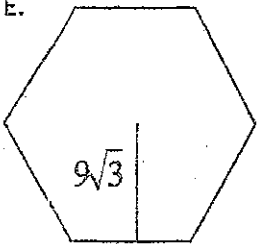


Number of Sides:	<u>3</u>
Central Angle:	<u>120°</u>
Side Length:	<u>20√3</u>
Radius:	<u>20</u>
Apothem:	<u>10</u>
Perimeter:	<u>60√3</u>
Area:	<u>300√3</u>

$$A = \frac{3 \cdot 8 \cdot 48\sqrt{3}}{2}$$

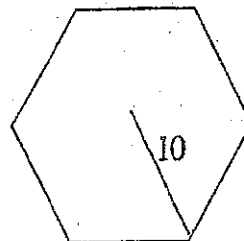
Hexagon:

E.



Number of Sides:	<u>6</u>
Central Angle:	<u>60°</u>
Side Length:	<u>18</u>
Radius:	<u>18</u>
Apothem:	<u>9√3</u>
Perimeter:	<u>108</u>
Area:	<u>486√3</u>

F.



Number of Sides:	<u>6</u>
Central Angle:	<u>60°</u>
Side Length:	<u>10</u>
Radius:	<u>10</u>
Apothem:	<u>5√3</u>
Perimeter:	<u>60</u>
Area:	<u>150√3</u>