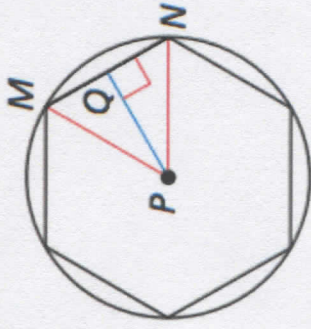


OBJECTIVE 1: Terminology

Reminder of earlier chapters when we learned about regular polygons.

TASK 1: Name the given terms using the diagram provided.

- a) center P
- b) radius PM or PN
- c) apothem PQ
- d) central angle MPN

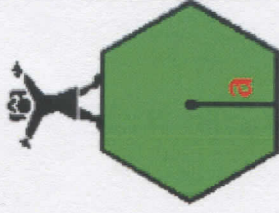
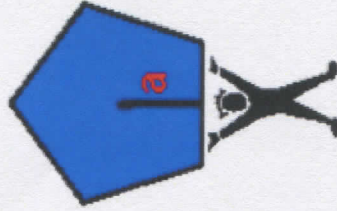
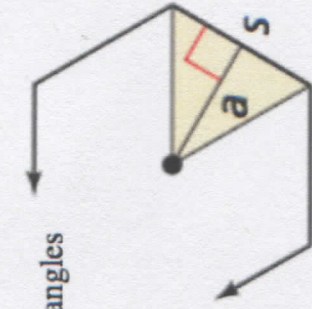


OBJECTIVE 2: Area of a Regular Polygon

$A = \text{Area of one triangle} \cdot \text{Number of triangles}$

$$A = \frac{1}{2} a \cdot P$$

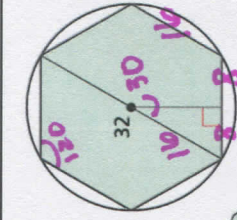
a = apothem P = perimeter



$$\frac{(n-2)(180)}{n}$$

TASK 2: Answer the following questions. Use correct units.

a) A regular hexagon is inscribed in a circle with a diameter of 32 feet. Find the area of the hexagon.

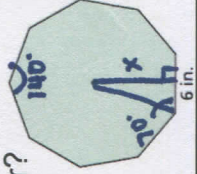


$$P = 16(6)$$

$$A = \frac{1}{2}(8\sqrt{3})(96)$$

$$= 384\sqrt{3} \text{ ft}^2 \approx 665.11 \text{ ft}^2$$

b) A mirror is in the shape of a regular nonagon with 6-inch sides. What is the area of the mirror?

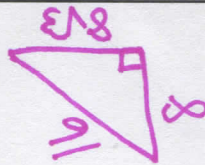


$$\tan 70^\circ = \frac{x}{3}$$

$$x = 3(\tan 70)$$

$$A = \frac{1}{2}(3 \tan 70)(54)$$

$$= 81(\tan 70) \text{ in}^2 \approx 222.5 \text{ in}^2$$



$$\frac{7(180)}{9} = 54$$

$$P = 6(9) = 54$$

$$\frac{(n-2)(180)}{n}$$

OBJECTIVE 3: Finding the Apothem

RECALL: degrees of an interior angle of a regular polygon.

TASK 3: Find the apothem and area of the figures provided.

a) **square**

15 in

$A = \frac{1}{2}(7.5)(60) = 225 \text{ m}^2$

b) **hexagon**

14 ft

$P = \frac{4(180)}{6} = 120$

$P = 14 \cdot 6 = 84$

$A = \frac{1}{2}(7\sqrt{3})(84) = 294\sqrt{3} \text{ ft}^2 \approx 509.723 \text{ ft}^2$

c) **hexagon**

5 ft

$P = 5 \cdot 6 = 30$

$A = \frac{1}{2}(2.5\sqrt{3})(30) = 37.5\sqrt{3} \text{ ft}^2 \approx 64.952 \text{ ft}^2$

d) **triangle**

3 m

$(3-2)(180) = \frac{180}{3}$

$P = 3(6\sqrt{3}) = 18\sqrt{3}$

$A = \frac{1}{2}(3)(18\sqrt{3}) = 27\sqrt{3} \text{ m}^2 \approx 46.765 \text{ m}^2$

OBJECTIVE 4: Finding Areas of Rhombuses & Kites

$$A = \frac{1}{2} d_1 d_2$$

TASK 4: Find the area of each rhombus or kite.

a) **rhombus**

5 ft

11 ft

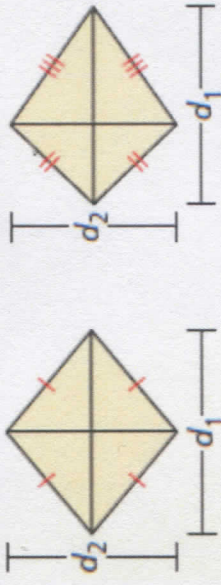
$A = \frac{1}{2}(5)(11) = 27.5 \text{ ft}^2$

b) **kite**

24 mm

10 mm

$A = \frac{1}{2}(10)(24) = 120 \text{ mm}^2$



Still need help with: