

DATE DUE : \_\_\_\_\_

Name : Key Period : \_\_\_\_\_

## Chapter 11 - Review

1. Find the perimeter and area of the parallelogram. Show all work. Round your answer to the nearest tenth if necessary.

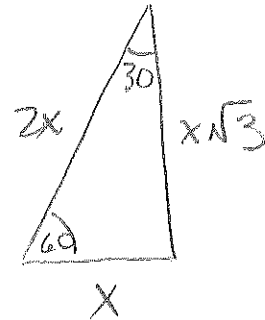
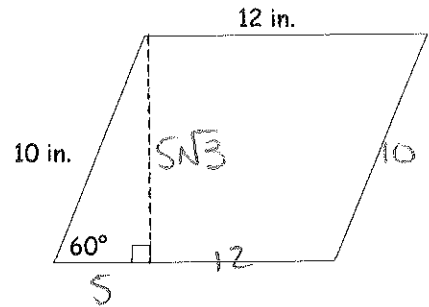
Perimeter = 44 in

Area = 103.9 in<sup>2</sup>

$$A = bh$$

$$= (12)(5\sqrt{3})$$

$$= 103.92$$



2. Find the perimeter and area of the shaded region. Show all work. Round your answer to the nearest tenth if necessary.

Perimeter = 39.4 cm  $6 + 12 + 9 + 10.44 + 2$

Area = 93 cm<sup>2</sup>

$$\text{Area (rect)} = (9)(12)$$

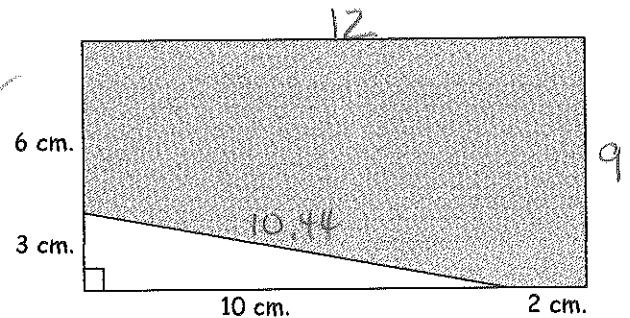
$$= 108$$

$$\text{Area (tri)} = \frac{(10)(3)}{2}$$

$$= 15$$

$$\text{Area (shaded)} = 108 - 15$$

$$= 93$$



$$3^2 + 10^2 = c^2$$

$$109 = c^2$$

$$c = 10.44$$

DATE DUE : \_\_\_\_\_

Name : \_\_\_\_\_

Period : \_\_\_\_\_

3. The arrowhead shown is made up of congruent rhombi as shown in the picture below. If the measure of one side of one rhombus is 3 cm, and the measure of the shorter diagonal is 2 cm, find the following values. Show all work. Round your answer to the nearest tenth if necessary.

Length of the longer diagonal = 5.6 cm  $(2.8)(2)$

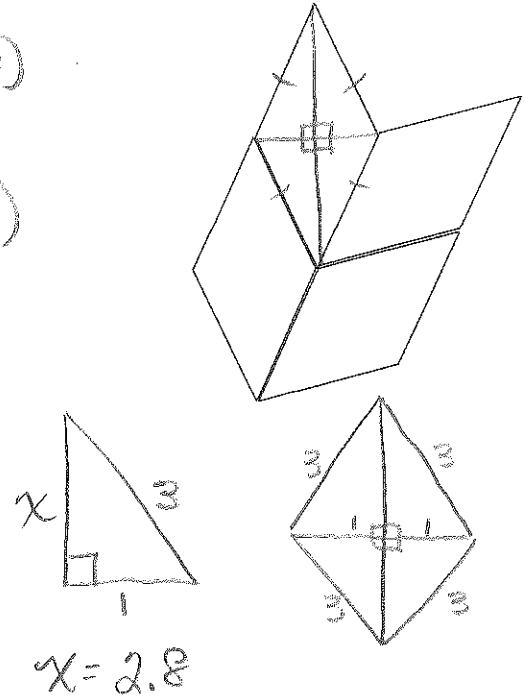
Area of each rhombus = 5.6 cm<sup>2</sup>

Total area of the arrowhead = 22.4 cm<sup>2</sup>  $(5.6)(4)$

$$A = \frac{(d_1)(d_2)}{2}$$

$$= \frac{(5.6)(2)}{2}$$

$$= 5.6$$



4. Find the perimeter and area of the rhombus. Show all work. Round your answer to the nearest tenth if necessary.

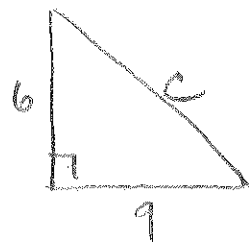
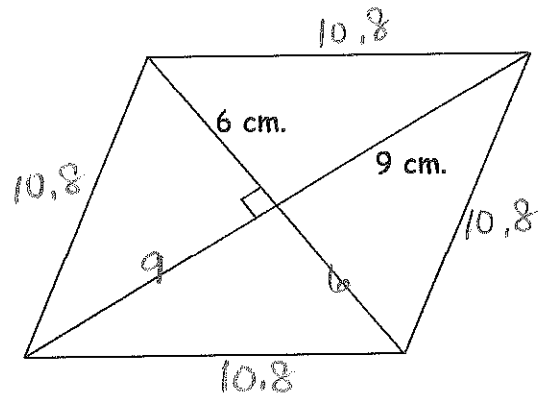
Perimeter = 43.2 cm

Area = 108 cm<sup>2</sup>

$$A = \frac{(d_1)(d_2)}{2}$$

$$= \frac{(12)(18)}{2}$$

$$= 108$$



$$6^2 + 9^2 = c^2$$

$$117 = c^2$$

$$c = 10.816$$

DATE DUE : \_\_\_\_\_

Name : \_\_\_\_\_

Period : \_\_\_\_\_

5. Find the area of a regular octagon with a perimeter of 80 inches. Round to the nearest tenth. Label the diagram. Show your work, including all formulas.

Central Angle =  $\underline{45^\circ}$       $\frac{360}{8} = 45$

Apothem =  $\underline{12.1 \text{ in}}$

Radius =  $\underline{13.1 \text{ in}}$

Perimeter =  $\underline{80 \text{ in}}$

Area =  $\underline{484 \text{ in}^2}$

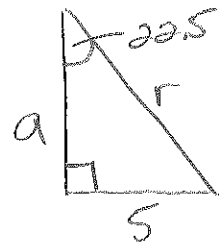
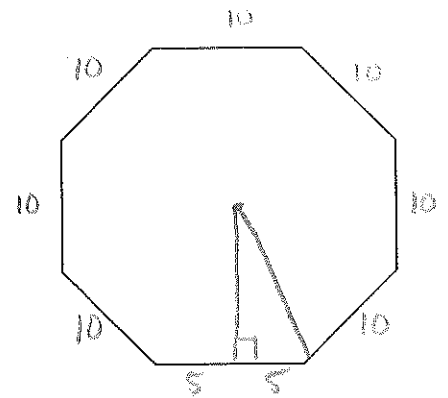
$A = \frac{1}{2} a P = \frac{1}{2} (12.1)(80)$

$\tan 22.5 = \frac{5}{a}$

$a = 12.07$

$\sin 22.5 = \frac{5}{r}$

$r = 13.06$



6. Find the area of the shaded region. Assume the inscribed polygon is regular. Show your work - including all formulas. Round to the nearest tenth if necessary.

Circle:

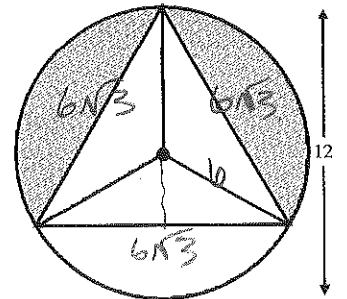
Radius =  $\underline{6}$

$A = \pi r^2$

$r = 6$

Area of the Circle =  $\underline{113.1}$

$A = 36\pi = 113.097$



Triangle:

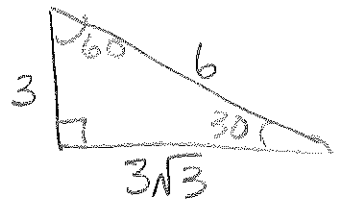
Central Angle =  $\underline{120^\circ}$       $\frac{360}{3} = 120$

Apothem =  $\underline{3}$

Radius =  $\underline{6}$

Perimeter =  $\underline{31.2}$       $18\sqrt{3} = 31.176$

Area of the Triangle =  $\underline{46.8}$       $A = \frac{1}{2} a P$       $A = \frac{1}{2} (3)(31.2)$



Total Area of the Shaded Region =  $\underline{44.2}$

$\text{Area} = (113.1 - 46.8) \left(\frac{2}{3}\right)$

$= 44.2$

DATE DUE : \_\_\_\_\_

Name : \_\_\_\_\_

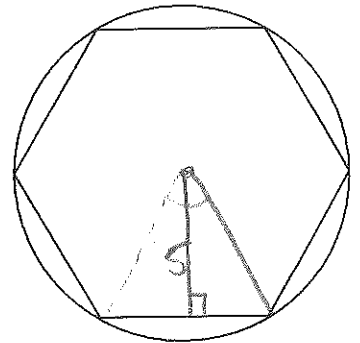
Period : \_\_\_\_\_

7. Find the area and circumference of a circle circumscribed about a regular hexagon with an apothem of 5 inches. Label the diagram. Round to the nearest tenth if necessary. Show your work - including all formulas.

Central Angle =  $60^\circ$

Area =  $105.7 \text{ in}^2$

Circumference =  $36.4 \text{ in}$



$$A = \pi r^2$$

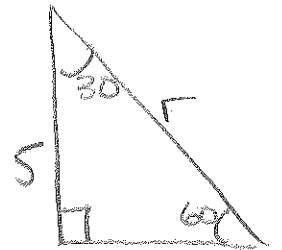
$$= (\pi)(5.8)^2$$

$$= 33.84 \pi$$

$$\cos 30 = \frac{5}{r}$$

$$r = 5.773$$

$$\boxed{r = 5.8}$$



$$C = 2\pi r$$

$$= 2\pi(5.8) = 36.44$$

8. A circle with radius 10 inches is circumscribed about a regular octagon. Find the area and the perimeter of the octagon. Label the diagram. Round to the nearest tenth if necessary. Show your work - including all formulas.

Central Angle =  $\frac{360}{8} = 45$

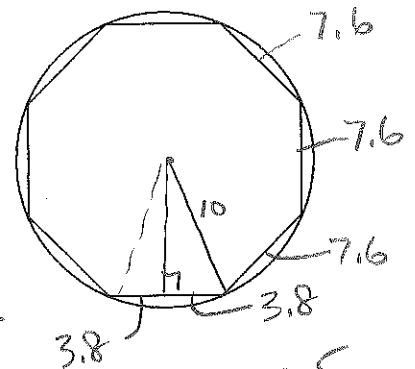
Area =  $279.7 \text{ in}^2$

radius = 10

perimeter = 60.8

apothem = 9.2

Perimeter =  $60.8 \text{ in}$



$$A = \frac{1}{2} aP$$

$$= \frac{1}{2} (9.2)(60.8)$$

$$= 279.68$$

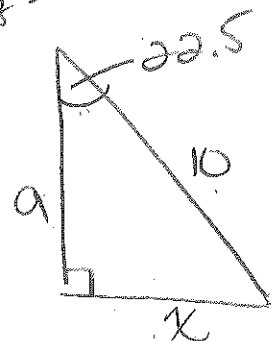
$$\cos 22.5 = \frac{a}{10}$$

$$\boxed{a = 9.238}$$

$$\sin 22.5 = \frac{x}{10}$$

$$\boxed{x = 3.826}$$

$$\begin{array}{r} x \quad 2 \\ \hline 7.6 \end{array}$$



DATE DUE : \_\_\_\_\_

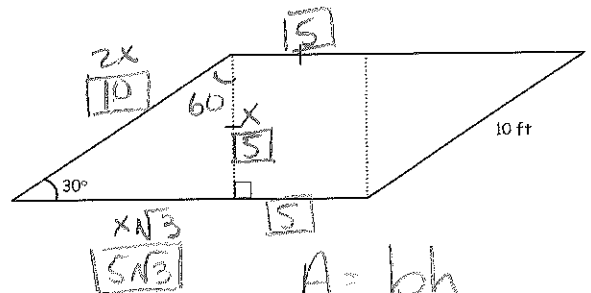
Name : \_\_\_\_\_ Period : \_\_\_\_\_

9. Dawne designed a deck in the shape of a parallelogram. If the sides of the deck are 10 feet and are inclined at an angle of  $30^\circ$  as shown in the figure, approximately how much area would she need to cover with wood? In order to allow for flaws in the wood, Dawne plans to purchase 10% more wood than what is needed to cover the area of the deck. How many square feet of wood should she buy? Label the diagram. Show your work - including all formulas.

Area of the Deck =  $68.3 \text{ ft}^2$

Amount of Wood to Buy =  $75.1 \text{ ft}^2$

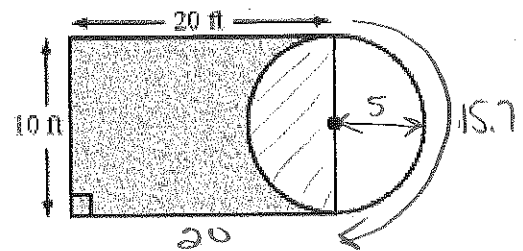
$$\begin{array}{r} 68.3 \\ \times 1.1 \\ \hline 75.13 \end{array}$$



$$\begin{aligned} A &= bh \\ &= (5 + 5\sqrt{3})(5) \\ &= 68.301 \end{aligned}$$

10. One side of a rectangle is the diameter of a circle. The length of the rectangle is 20 feet. The width of the rectangle is 10 feet. Find the perimeter of the figure and the area of the shaded region. Show your work - including all formulas.

Area of the Shaded Region =  $160.7 \text{ ft}^2$



Perimeter =  $65.7 \text{ ft}$

Area (rect) = 200

Area (semi) =  $39.3$   
160.7

Perimeter =  $10 + 20 + 20 + 15.7$   
 $= 65.7$

$$\begin{aligned} A &= \pi r^2 \\ &= \pi (5)^2 \\ &= 25\pi \end{aligned}$$

Semicircle:  
 $78.53 \div 2$   
 $= 39.26$

$C = 2\pi r$

$C = 10\pi$

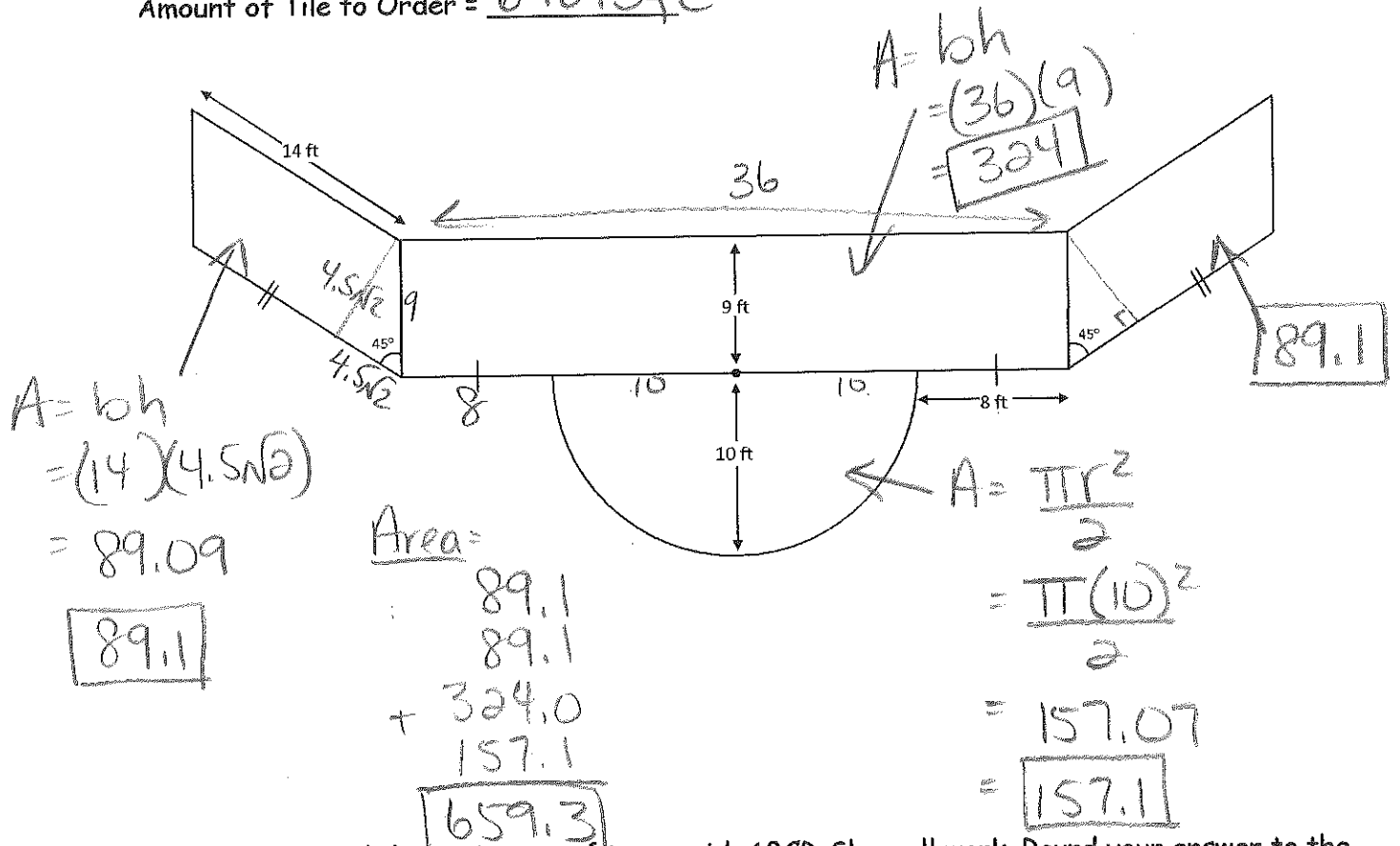
$C = 31.41$

Semicircle:  
 $31.4 \div 2$   
 $= 15.7$

11. The construction company is trying to figure out how much tile it will need to tile the entry and the halls of a new middle school. The entry is in the shape of a semi circle and the halls are comprised of a rectangle and congruent parallelograms.

In order to allow for errors, the construction company plans to order 5% more tile than what it needs to cover the total area of the floor space. How many square feet of tile should they order? Show your work - including all formulas.

Area = 659.3 ft<sup>2</sup>       $(659.3)(1.05) = 692.265$   
 Amount of Tile to Order = 692.3 ft<sup>2</sup>

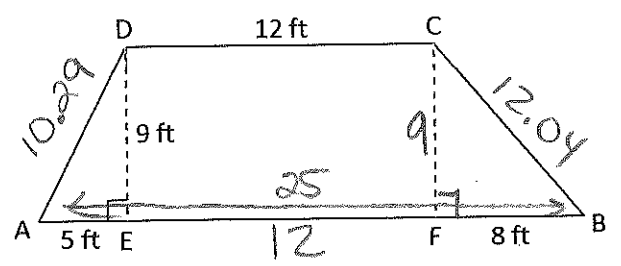


12. Find the area and the perimeter of trapezoid ABCD. Show all work. Round your answer to the nearest tenth if necessary.

Area = 166.5 ft<sup>2</sup>

Perimeter = 59.3 ft

$12 + 12 + 25 + 10.3$   
 $= 59.3$



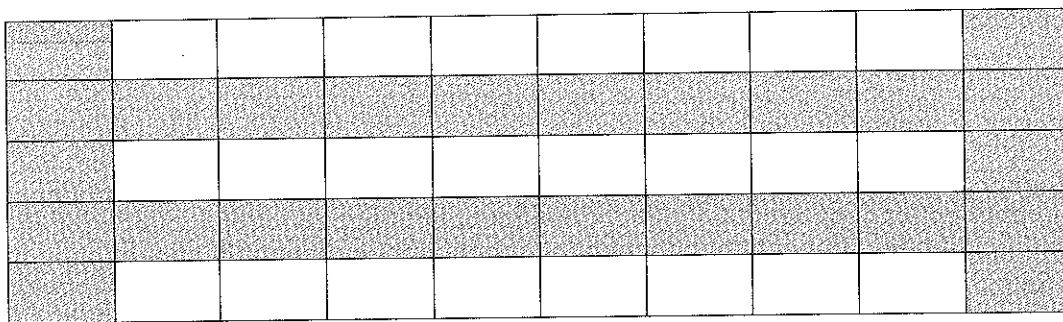
$A = \frac{(b_1 + b_2)h}{2}$   
 $= \frac{(12 + 25)(9)}{2} = 166.5$

DATE DUE : \_\_\_\_\_

Name : \_\_\_\_\_

Period : \_\_\_\_\_

13. Find the probability that a point chosen at random lies in the shaded region.



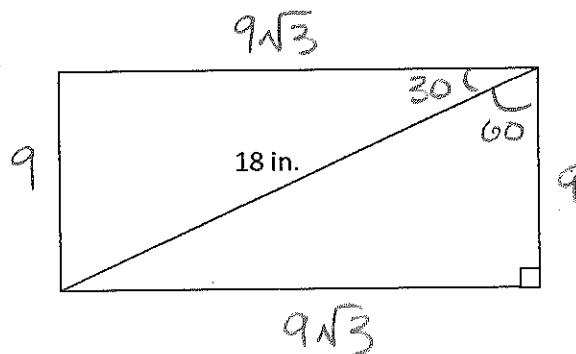
Probability =  $\frac{0.52}{52\%}$        $\frac{26}{50} = 0.52$        $52\%$

14. The diagonal of the rectangle below divides the right angles into a  $60^\circ$  angle and a  $30^\circ$  angle. The diagonal has a length of 18 in. Find the area and the perimeter of the rectangle. Show all work. Leave your answer as an exact value.

Perimeter =  $18 + 18\sqrt{3}$  in

Area =  $81\sqrt{3}$  in<sup>2</sup>

$A = bh$   
 $= (9)(9\sqrt{3})$



15. The spinner below has a diameter of 10 cm. Find the area of all of the blue sectors and the probability of spinning the spinner and landing on blue.

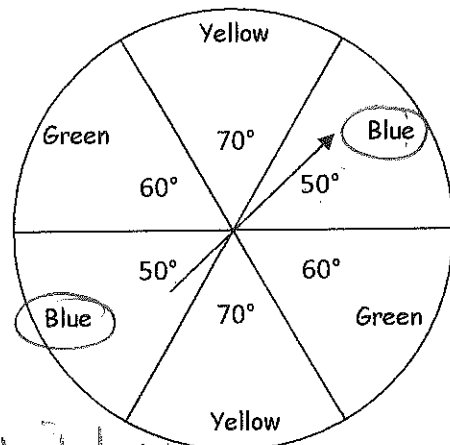
Area<sub>Blue</sub> =  $21.8 \text{ cm}^2$        $A = \pi r^2$

Probability =  $27.8\%$        $A = 25\pi$

Area(Blue) =  $\frac{100}{360} = \frac{x}{25\pi}$

$x = 21.81$

Probability:  $\frac{21.81}{25\pi} = \frac{x}{100}$   
 $= 27.7$



DATE DUE : \_\_\_\_\_

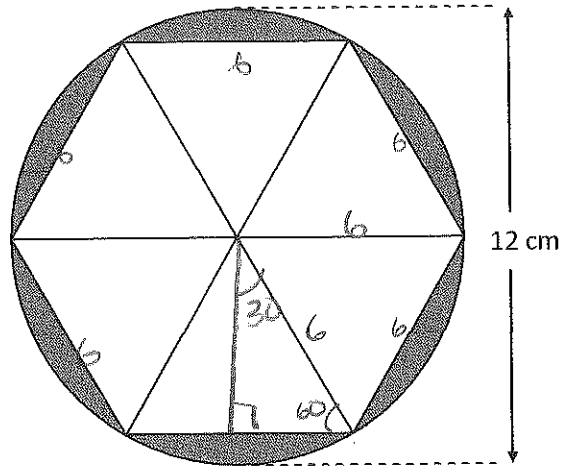
Name : \_\_\_\_\_ Period : \_\_\_\_\_

16. Find the area of the shaded region. Assume the inscribed polygon is regular with a diameter of 12 cm. Leave answers as exact values.

Circle:

Radius = 6 cm       $A = \pi r^2$   
 $A = 36\pi$

Area of circle =  $36\pi \text{ cm}^2$



Hexagon:

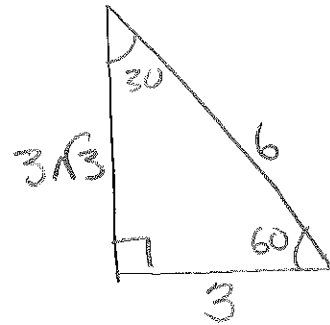
Central Angle =  $60^\circ$        $\frac{360}{6} = 60$

Apothem =  $3\sqrt{3} \text{ cm}$

Radius = 6 cm

Perimeter = 36 cm

Area of hexagon =  $54\sqrt{3} \text{ cm}^2$



$A = \frac{1}{2} aP$

$A = \frac{1}{2} (3\sqrt{3})(36)$

Area of shaded region =  $36\pi - 54\sqrt{3} \text{ cm}^2$

Area (Shaded) =  $36\pi - 54\sqrt{3}$