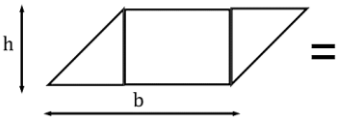
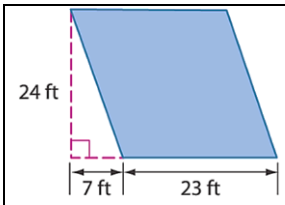
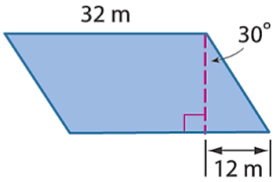
Honors 1 Name: _____

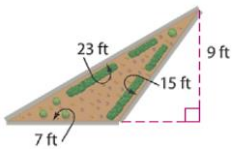
11.1 – Areas of Parallelograms and Triangles

Parallelogram: Height:	Area of a Parallelogram:  = Area of a Parallelogram = _____

Example: Find the area and perimeter of each parallelogram.

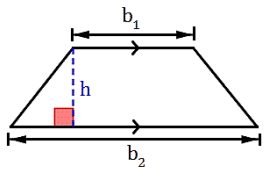
 	

Area of a Triangle = _____ . Where does the ½ come from?

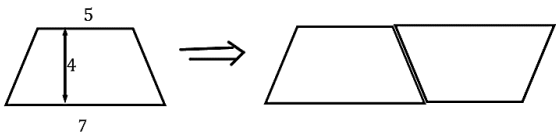
GARDENING **A worker needs enough mulch to cover the triangular garden shown and enough paving stones to border it. If one bag of mulch covers 12 square feet and one paving stone provides a 4-inch border, how many bags of mulch and how many stones does he need to buy?**  	The height of a triangle is 8 more than its base. Its area is 105 square inches. What are the dimensions?

11.2 – Areas of Trapezoids, Rhombi, and Kites

Trapezoid:

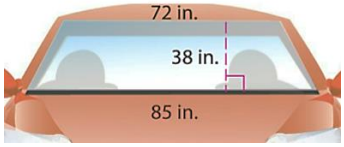


Why does the area formula have a ½ in it?



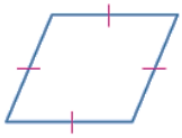
Area of a trapezoid formula: _____

The windshield on most cars can be approximated by a trapezoid. Find the area of a windshield. (In physics, we care about this because it relates to the drag the car experiences from the air resistance).

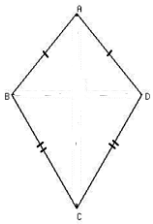


Now, find how many inches of piping it would take to seal the outside of the glass to the frame.

Rhombus



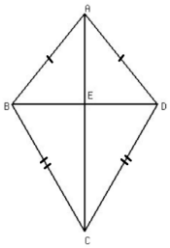
Kite



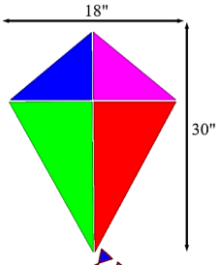
Area of a Rhombus/Kite = _____

Proof for the Area of a Rhombus/Kite Formula

Area of Kite = (Area ΔABD)+ (Area ΔBCD)



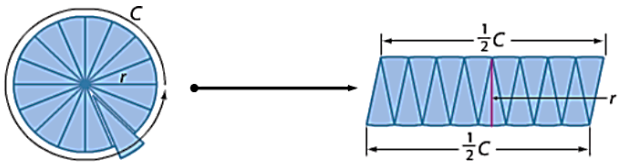
Find the area of the following kite.



One diagonal of a 240 in^2 kite is twice as long as the other diagonal. What are the dimensions?

11.3 - Areas of Circles and Sectors

Justification for the Area of a Circle Formula



Area of a Parallelogram = bh

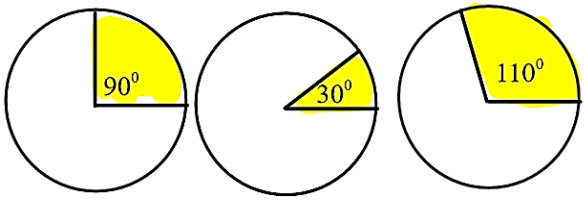
Area of a Circle = _____

Ex: A typical bag of cheese will cover ~900 square inches of pizza. How many bags are required for the 80 18" diameter pizzas a parlor sells in a typical day?

An outdoor accessories company manufactures circular covers for outdoor umbrellas. If the cover is 8" longer than the 72" diameter umbrella on each side, find the area of the cover in square inches.

Step 1: Draw a picture Step 2: Calculate

Sector: region of a circle bounded by a central angle and its intercepted major or minor arc. Ex: slice of pizza.



Area of Sector 1 =

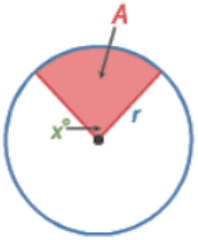
Area of Sector 2 =

Area of Sector 3 =

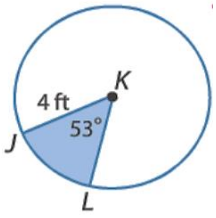
Area of a Sector: to find the area of a sector, use the fact that the ratio of the sector's area to that of the circle is the same for the sector's central angle.

Proportion: $\frac{A}{\pi r^2} = \frac{x}{360}$

Equation: $A =$



Find the area of the sector.



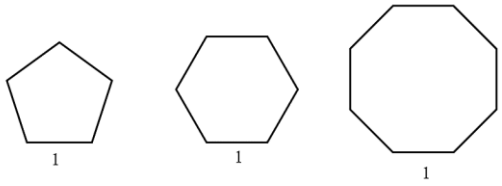
A jeweler makes a pair of earrings by cutting two 55° sectors from a silver disk.

a) find the area of each sector

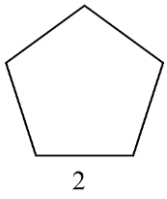
b) If the weight of the entire silver disk is 2.3 g, how much does each earring weigh?

11.4 Areas of Regular Polygons and Composite Figures

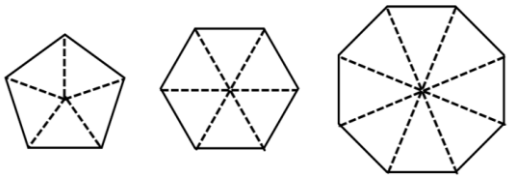
How could we find the area of each shape below?



Find the area of a regular pentagon with side lengths = 2



Apothem: segment drawn from the center of a regular polygon perpendicular to a side.
Central Angle: angle with its vertex at the center and its sides passing through consecutive vertices of the polygon.

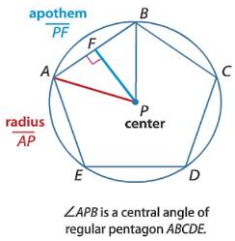


Pentagon central angle =

Hexagon central angle =

Octagon central angle =

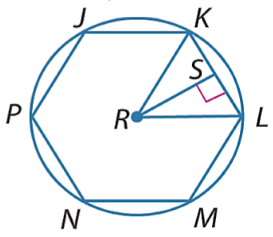
General Formula for the Central Angle of an "n-sided" polygon = _____



In the figure, regular hexagon $JKLMNP$ is inscribed in $\odot R$. Identify the center, a radius, an apothem, and a central angle of the polygon. Then find the measure of a central angle.

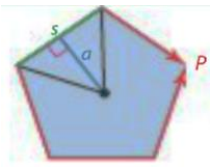
Center: **Radius:**

Apothem: **Central Angle:**



Area of a Regular Polygon

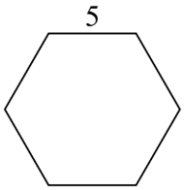
$A = \frac{1}{2}a(ns)$ or $A = \frac{1}{2}aP$



Why is $A = \frac{1}{2}a(ns)$ correct?

How are the two equations equivalent?

Find the area of a hot tub cover for the one shown below if each side is 5 feet.



The blueprint sketch for a mini golf green is shown below. How many square feet of carpet will it take to cover?