1) Find the area of $\triangle ABC$ if a= 16, b= 25, and $\angle C = 52°$.

$$A = .5 * a * b * sinC$$
$$A = .5 * 16 * 25 * sin52$$
A = 157.60 u^2

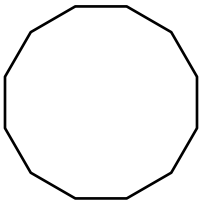
2) The area of $\triangle ABC$ is 15. If a = 12 cm, b = 5 cm, find the measure of $\angle C$.

$$A = .5 * a * b * sinC$$
$$15 = .5 * 12 * 5 * sinC$$
A = 30°

3) Find the area of a regular 12-sided polygon inscribed in a circle of radius 8 cm.

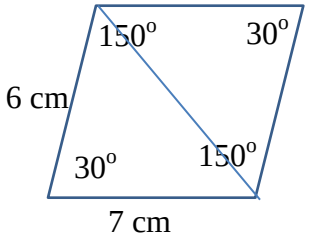
$360^o/_{12} = 30^o, 180^o - 30^o = {}^{150^o}/_2 = 75^o => vertex = 30^o$

$$A = .5 * a * b * sinC$$
$$A = .5 * 8 * 8 * sin30$$
A = 16 cm^2 for each triangle
16*12=192 cm^2

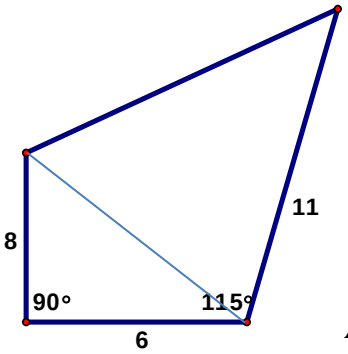


4) Adjacent sides of a parallelogram have lengths 6 cm and 7 cm, and the measure of the included angle is 30°. Find the area of the parallelogram.

$$A = .5 * 7 * 6 * sin30^o$$
$$A = .5 * 7 * 6 * sin30^o$$
A=10.5 cm^2*2=21cm^2



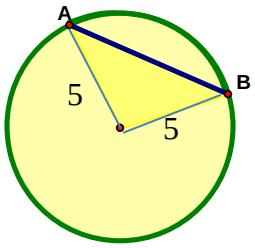
5) Find the area of the quadrilateral below to the nearest square unit.



$$A = .5 * 8 * 6$$
$$A = .5 * 8 * 6$$
A=24 cm^2, Diagonal = 10
$Tan^{-1}(8/6)$ = 53.1302°
Triangle angles=90°, 53.1302°, 36.8699°
115°-53.1302° =61.8699°
$$A = .5 * 10 * 11 * \sin(61.8699^o)$$
$$A = 48.5034\ u^2$$
24+48.5034=72.5034 u^2

5) Find the area of a segment of a circle of radius 5 if the measure of the central angle of the segment is 2 radians.

$A = \frac{1}{2} r^2 \cdot \theta$



$A = .5 * a * b * sinC$

$A = .5 * 5 * 5 * sin2$

A=11.3662 u^2

$\frac{2}{2\pi} * \pi 5^2 = 25\ u^2$

25-11.3662=13.6338 u^2

6) Find the area of the segment formed by a chord 24 cm long in a circle of radius 13 cm.

$$A = \sqrt{s(s-a)(s-b)(s-c)}$$

$$s = \frac{(24+13+13)}{2} = 25$$

$$A = \sqrt{25(25-24)(25-13)(25-13)} = 60\ cm^2$$

$$24^2 = 13^2 + 13^2 - 2abcos(x)$$

X=134.7603°

$$\frac{134.7603}{360} * \pi 13^2 = 198.7449\ cm^2$$

$$198.7449 - 60 = 138.7449\ cm^2$$

7) Find the area of the Bermuda Triangle, if the sides have the approximate lengths 850 miles, 925 miles, and 1300 miles.

$$A = \sqrt{s(s-a)(s-b)(s-c)}$$

$$s = \frac{(850+925+1300)}{2} = 1537.5$$

$$A = \sqrt{1537.5(1537.5-850)(1537.5-925)(1537.5-1300)}$$

$$= 392128.824\ miles^2$$

8) Find the area of a triangle in a rectangular coordinate plane whose vertices are (0,0), (3,4) and (-8,6) using Heron's area formula.

A(0,0) to B(3,4) = 5

A to C = 10

B to C = $5\sqrt{5}$

$$A = \sqrt{s(s-a)(s-b)(s-c)}$$

$$s = \frac{\left(5\sqrt{5}+5+10\right)}{2} = 13.0902$$

$$A = \sqrt{13.0902\left(13.0902-5\sqrt{5}\right)(13.0902-5)(13.0902-10)} = 25\ u^2$$