

**SECTION 9.1 - LOOK OVER YOUR NOTES**

The vertices of a triangle are A (8, 5), B (1, -2), and C (-3, -2).

Classify  $\triangle ABC$  as scalene, isosceles, or equilateral.

$$AB = \sqrt{(8-1)^2 + (5-(-2))^2}$$

$$AB = \sqrt{98}$$

SCALENE

$$BC = \sqrt{(1-(-3))^2 + (-2-(-2))^2}$$

$$BC = \sqrt{42} = \sqrt{16}$$

$$AC = \sqrt{(8-(-3))^2 + (5-(-2))^2}$$

$$AC = \sqrt{170}$$

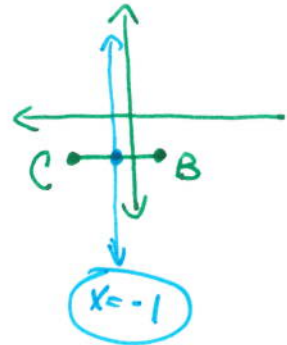
Write an equation of the perpendicular bisector of  $\overline{BC}$ .

$$\text{slope } BC = \frac{0}{4} = 0$$

$\perp$  is undefined (look at pic)

$$\text{midpt. } \left( \frac{1+(-3)}{2}, \frac{-2+(-2)}{2} \right)$$

$$(-1, -2)$$



The entryway to an office building has a circular mosaic tile with a scalene triangle inscribed within a circle. The vertices of the triangle are A (0, 0), B (8, 2), and C (4, 6).

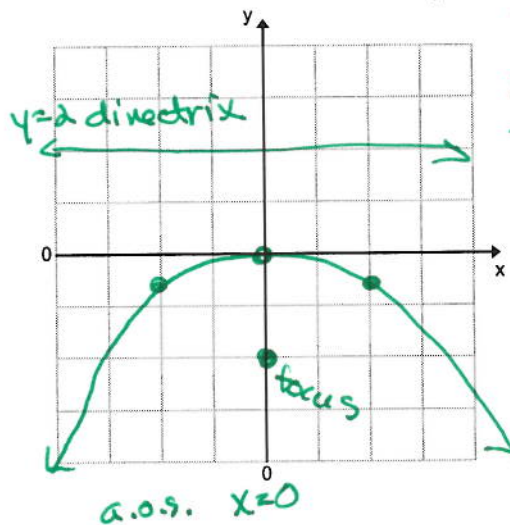
What is the center of the circumscribed circle?

What is the area of the circle?



**SECTION 9.2 - LOOK OVER YOUR NOTES**

Graph  $x^2 = -8y$ . Identify the focus, directrix, and axis of symmetry.



$$x^2 = 4py$$

$$-8 = 4p$$

$$p = -2 \text{ focus}$$

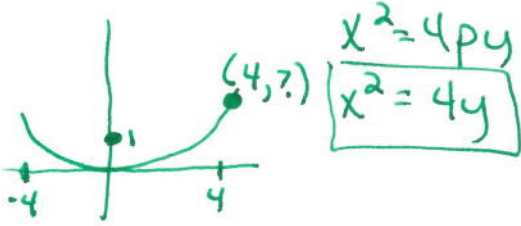
x	y
2	$-\frac{1}{2}$
-2	$-\frac{1}{2}$

Write an equation of the parabola shown.

Draw a parabola with a given focus have partner write equation (make sure you know correct answer)

The cross section of a portable searchlight reflector is a parabola. The axis of symmetry is vertical, the widest part of the parabola is 8 inches across, and the light bulb is 1 inch from the vertex.

Write an equation for the cross section.



How deep is the reflector?

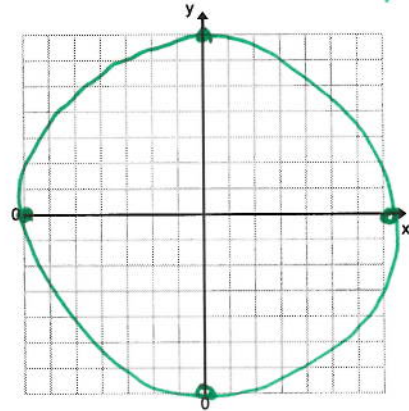
plug in 4 for x  
 $4^2 = 4py$   
 $y = 4$  4 in.

SECTION 9.3      LOOK OVER YOUR NOTES

Graph  $y^2 - 49 = -x^2$

$x^2 + y^2 = 49$

$r = 7$



The point  $(-3, 4)$  lies on a circle whose center is the origin.

Write the standard form of the circle's equation.

What is the equation of the line tangent to the circle at  $(3, -4)$ ?

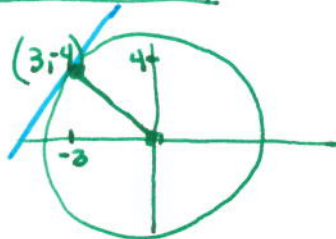
$r = \sqrt{(-3)^2 + (4)^2}$

$r = \sqrt{9+16}$

$r = \sqrt{25}$

$r = 5$

$x^2 + y^2 = 25$



original slope:  $-\frac{4}{3}$

$\perp m = \frac{3}{4}$

$y = mx + b$

$-4 = 3(\frac{3}{4}) + b$

$-4 = \frac{9}{4} + b$

$-\frac{16}{4} = \frac{9}{4} + b$

$b = -\frac{25}{4}$

so

$y = \frac{3}{4}x - \frac{25}{4}$

A signal from a radio station has a circular range of 50 miles. A DJ drives 25 miles north and 42 miles east of the station.

Is he still in the station's range?

If he begins driving west, for how many miles will he be in the station's range?

$x^2 + y^2 < 50^2$

$42^2 + 25^2 < 50^2$

$2389 < 2500$

yes



need -x on circle where  $y = 25$

$x^2 + (25)^2 = 50^2$

$x^2 + (25)^2 = 50^2$

$x^2 + 625 = 2500$

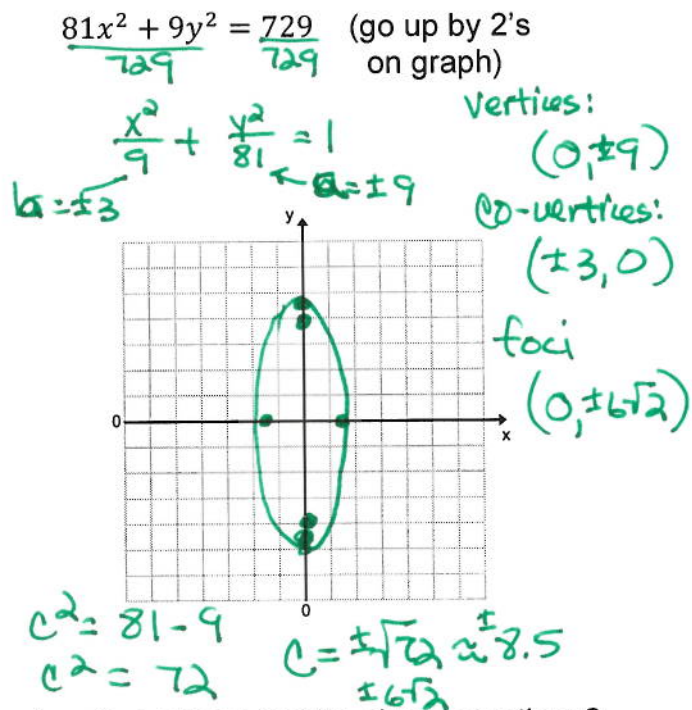
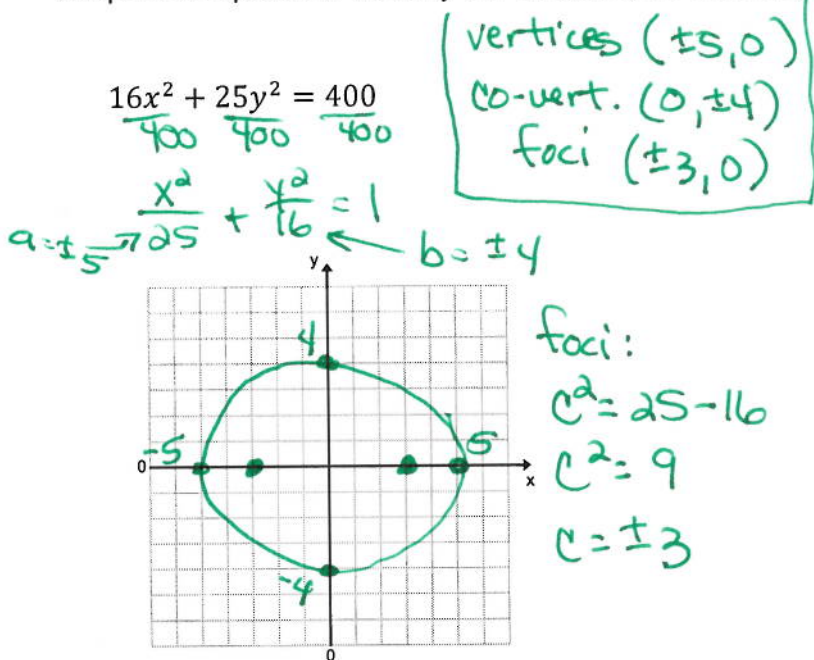
$x^2 = 1875$

$x \approx -43.3$

driving  $42 + 43.3 \approx 85.3$  miles

**SECTION 9.4 LOOK OVER YOUR NOTES**

Graph the equation. Identify the vertices, co-vertices, and foci of the ellipse



In words, explain how you can identify the different types of conic sections just by given equations?