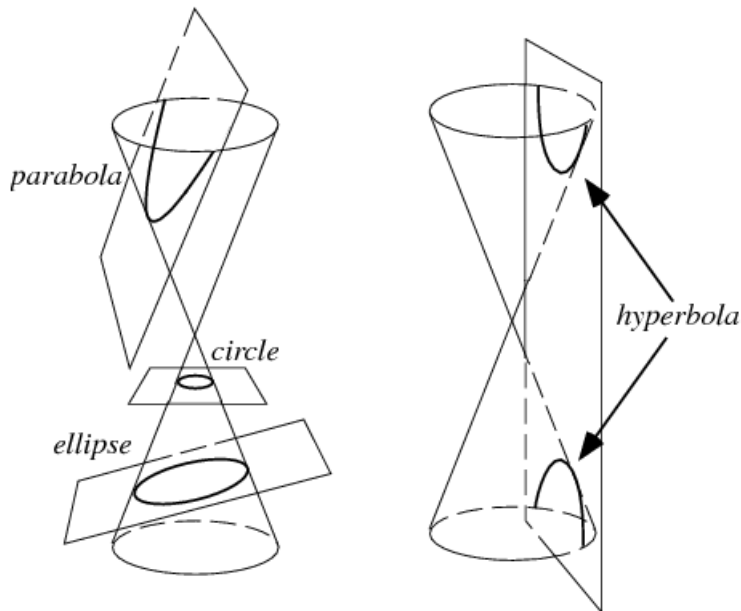


10-1 Conic Sections

A. A conic section (or just conic) is a curve obtained as the intersection of a cone.

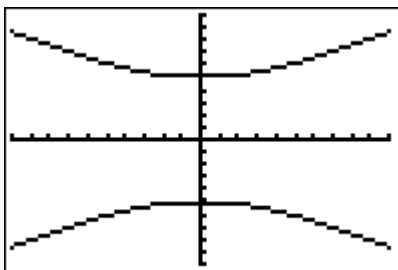
B. Types of Conic Sections



C. Equations of Conic Sections (Centered at the Origin)

Equation	Conic Section
$x^2 + y^2 = r^2$	Circle
$ax^2 + by^2 = c^2$	Ellipse
$ax^2 - by^2 = c^2$	Hyperbola
$y = ax^2$ or $x = ay^2$	Parabola

D. Domain (x) and Range (y)



$$2y^2 - x^2 = 50$$

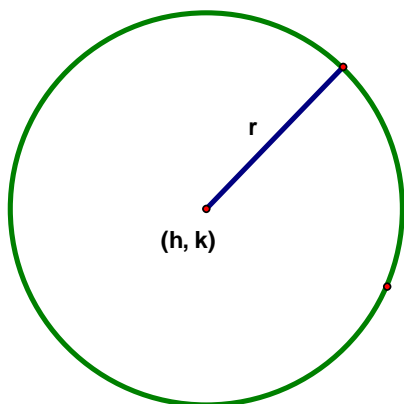
Domain: $-\infty$ to ∞

Range: $-\infty$ to -5 and 5 to ∞

What are the x- and y-intercepts?

10-3 Circle Notes

A. Circle Basics



Equation of a Circle in Standard Form: $(x - h)^2 + (y - k)^2 = r^2$

Center: (h, k)
Radius = r

This formula is derived from the distance formula $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ where the distance becomes the radius (distance from the circle to its center).

B. Identifying the Center and Radius from an Equation

$$(x - 2)^2 + (y + 5)^2 = 9$$

Center: $(2, -5)$; $r = 3$

C. Using Information to Write the Standard Form Equation of a Circle (Recall: $C = 2\pi r$ and $A = \pi r^2$.)

Center: $(-3, 4)$; Area = 100π

$$A = \pi r^2$$

$$100\pi = \pi r^2$$

$$100 = r^2$$

$$(x + 3)^2 + (y - 4)^2 = 100$$

D. Graphing Circles

$(x + 5)^2 + (y - 1)^2 = 9$ (Plot the center point, then go out r units in each direction.)

