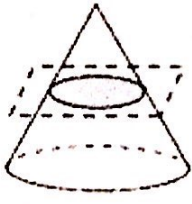
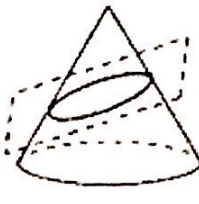
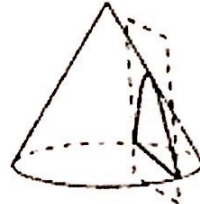
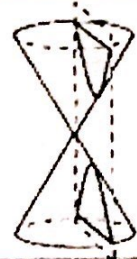


Conic Sections

Conic Sections	A conic section is formed by the intersection of a plane and a right circular cone. The angle of the plane creates the type of conic section. Label each conic section below.			
				
	Circle	Ellipse	Parabola	Hyperbola

How to determine which type of conic section: Put x^2 & y^2 on same side!

Circle: Equation has x^2 & y^2 with the <u>same sign</u> & <u>same coefficient</u> . Ex: $18x - 3x^2 + 4 = 3y^2 + 32y$ $18x - 3x^2 + 4 - 3y^2 - 32y = 0$	Ellipse: Equation has x^2 & y^2 with the <u>same sign</u> but <u>different coefficients</u> . Ex: $18x - 3x^2 + 4 = 4y^2 + 32y$ $18x - 3x^2 + 4 - 4y^2 - 32y = 0$
Hyperbola: Equation has x^2 & y^2 with <u>different signs</u> . Coefficients do not matter! Ex: $18x - 3x^2 + 4 = -4y^2 + 32y$ $18x - 3x^2 + 4 + 4y^2 - 32y = 0$	Parabola: Equation has x^2 <u>OR</u> y^2 , not both. Ex: $8x + 3 = y^2 - 7y + 4$

Special case: $4xy = 24$ (Hyperbola)

Example: Identify the conic section.

1. $x^2 - 7y - 2x + 1 = 0$

Parabola

3. $x^2 + 3x - 21y - 61 = 4y^2$

$x^2 - 4y^2$
(Diff. signs) Hyperbola

5. $5x^2 - 9x + 5y^2 + 2y + 12 = 0$

Circle

2. $x^2 + 2y^2 - 8x + 11 = 0$

Ellipse (Same sign, diff. coeff)

4. $y^2 - 3y - 2x + 11 = 0$

Parabola

6. $-2x^2 - 11x + y^2 + 6y + 72 = 0$

Hyperbola

