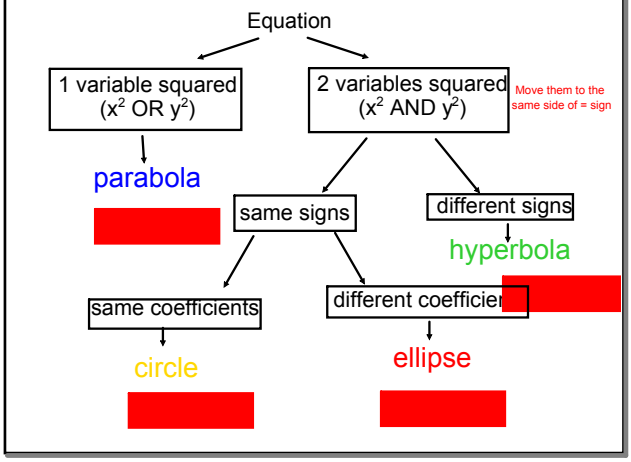
Classifying Conics in General Form 1-14-16



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Steps to determine which conic you have:

1) Look for squared terms...
   If there's only one, it's a ***parabola!***
   If there's two, make sure they're both on the same side of the equation and keep going.

2) Look at the signs of the squared terms...
   If they have different signs, it's a ***hyperbola***!
   If they have the same signs, go to the next step.

3) Look at the coefficients in front of the squared terms...
   If they are the same, it's a ***circle***!
   If they are different, it's an ***ellipse***!

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Example 1: $y^2 + x + 12y + 40 = 0$ Parabola

Example 2: $-x^2 + y^2 + 6x + 6y - 4 = 0$ Hyperbola

Example 3: $9x^2 - 4y^2 + 16y - 52 = 0$ Hyperbola

Example 4: $x^2 + y^2 + 4x - 6y + 4 = 0$ Circle

Example 5: $5y^2 = -8x^2 - 16x + 192$ Ellipse

$8x^2 + 5y^2 = 8x^2$

**Note: The squared terms MUST be on the same side of the equal sign before you can go through all steps.

Example 6: $2y^2 + 4x = -2x^2 - 6x + 8$ Circle

$+2x^2 \quad +2x^2$

$2x^2 + 2y^2$

Example 7: $3x + 4x^2 = y - 8$ Parabola

Example 8: $3x^2 + 5x^2 = -x + y - 9$

$8x^2$ Parabola

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11) $x^2 + y^2 + 8x + 15 = 0$

12) $25x^2 - 16y^2 + 50x - 375 = 0$

13) $x^2 + 2x + y + 5 = 0$

14) $x^2 + 16y^2 - 4x + 32y + 4 = 0$

15) $-x^2 + y^2 - 2y - 15 = 0$

16) $x^2 + y^2 - 8x + 8y + 26 = 0$

17) $-y^2 + x - 10y - 28 = 0$

18) $-x^2 - 12x + 3y - 36 = 0$

19) $-x^2 + 16y^2 + 2x + 112y + 179 = 0$

20) $x^2 + 4y^2 + 8y - 16 = 0$

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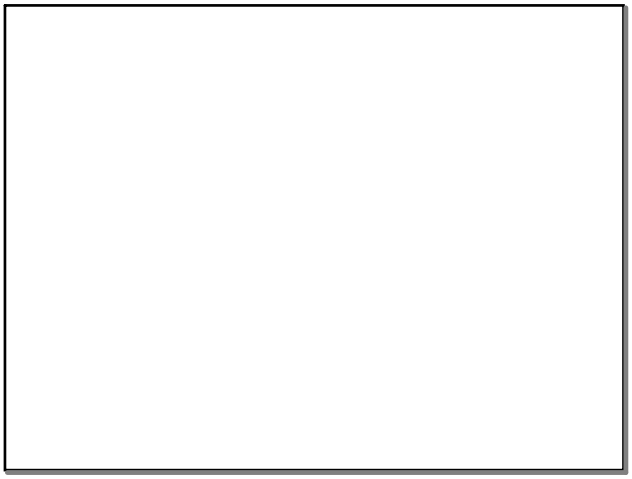

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