Recognizing Patterns

Graphs of 1st degree equations are lines

$Ax + By = C$

$y = mx + b$

Graphs of 2nd degree equations with only 1 of the variables squared is a parabola

$y = ax^2 + bx + c$

$y = a(x - h)^2 + k$

Graphs of 2nd degree equations with both variables squared and coefficients equal is a circle

$Ax^2 + By^2 + Dx + Ey + F = 0$

$A = B$

$(x - h)^2 + (y - k)^2 = r^2$

Graphs of 2nd degree equations with both variables squared and coefficients are different with the same signs is an ellipse

$Ax^2 + By^2 + Dx + Ey + F = 0$

$A \neq B$

$$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$$