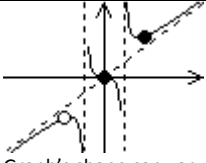







Graphs in Precalculus Algebra: Graphing Criterion

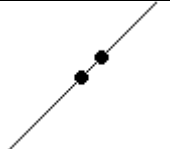





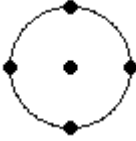
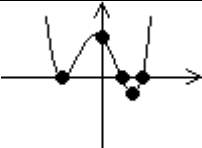
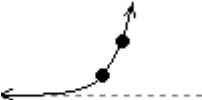
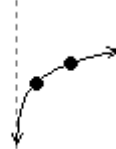
in Prof. Rickman's classes.

New graphs in Precalculus Algebra

Shape	Graph	In precalculus* seen when graphing ... (with examples of equations**)
<p>General Rational functions:</p> <p><u>Must plot at least:</u> x-intercepts y-intercept holes intersections with HA or OA at least 1 point per section</p> <p><u>Asymptotes:</u> Horizontal, vertical and/or oblique asymptotes must be shown as a dashed line if moved off the axis.</p>	 <p style="text-align: center;">Graph's shape can vary.</p>	<p><u>Rational Functions:</u></p> $y = \frac{a_n x^n + a_{n-1} x^{n-1} + a_{n-2} x^{n-2} + \dots + a_2 x^2 + a_1 x + a_0}{b_m x^m + b_{m-1} x^{m-1} + b_{m-2} x^{m-2} + \dots + b_2 x^2 + b_1 x + b_0}$
<p>Horizontal Parabola:</p> <p><u>Must plot at least:</u> Vertex Point above the vertex Point below the vertex</p>		<p><u>Quadratic Equations:</u></p> $x = a y^2 + b y + c$ $4c(x - h) = (y - k)^2$
<p>Half a U-shaped curve:</p> <p><u>Must plot at least:</u> Endpoint One other point</p>		<p><u>Even Root Functions:</u></p> $y = a \sqrt[n]{x - h} + k \quad ; n \text{ is even}$
<p>Horizontal S:</p> <p><u>Must plot at least:</u> Inflection point Point to the left of Inflection point Point to right of Inflection point</p>		<p><u>Odd Root Functions:</u></p> $y = a \sqrt[n]{x - h} + k \quad ; n \text{ is odd}$
<p>Ellipse:</p> <p><u>Must plot at least:</u> Center Top point Bottom point Right point Left point</p>	 <p style="text-align: center;">Graph's orientation can vary.</p>	<p><u>2nd degree equations in 2 variables:</u></p> $A x^2 + C y^2 + D x + E y + F = 0; A \neq C, \text{ and } AC > 0$ $\frac{(x - h)^2}{a^2} + \frac{(y - k)^2}{b^2} = 1, \text{ or } \frac{(y - k)^2}{a^2} + \frac{(x - h)^2}{b^2} = 1$
<p>Hyperbola:</p> <p><u>Must plot at least:</u> Center The 2 vertices</p> <p><u>Asymptotes:</u> Oblique asymptotes must be shown as dashed lines.</p>	 <p style="text-align: center;">Graph's orientation can vary.</p>	<p><u>2nd degree equations in 2 variables:</u></p> $A x^2 + C y^2 + D x + E y + F = 0; AC < 0$ $\frac{(x - h)^2}{a^2} - \frac{(y - k)^2}{b^2} = 1, \text{ or } \frac{(y - k)^2}{a^2} - \frac{(x - h)^2}{b^2} = 1$

* Other functions or equations may have this type of graph, but these are the basic ones that will be seen in precalculus algebra.

** The function or equation can be in other forms.

Shape	Graph	In college algebra* seen when graphing ... (with examples of equations**)
<p>Lines: Must plot at least: 2 points</p>		<p>Linear Functions and Linear Equations in 2 variables: $y = mx + b$ $ax + by = c$</p>
<p>Parabola: Must plot at least: Vertex Point to the left of vertex Point to right of vertex</p>		<p>Quadratic Functions: $y = ax^2 + bx + c$ $y = a(x - h)^2 + k$</p>
<p>Half a Parabola: Must plot at least: Endpoint One other point</p>		<p>Square Root Functions: $y = a\sqrt{x - h} + k$</p>
<p>Vee: Must plot at least: Vertex Point to the left of vertex Point to right of vertex</p>		<p>Absolute Value Functions: $y = a x - h + k$</p>
<p>Vertical S: Must plot at least: Inflection point Point to the left of Inflection point Point to right of Inflection point</p>		<p>Cube Functions: $y = a(x - h)^3 + k$</p>
<p>Horizontal S: Must plot at least: Inflection point Point to the left of Inflection point Point to right of Inflection point</p>		<p>Cube Root Functions: $y = a\sqrt[3]{x - h} + k$</p>
<p>Circle: Must plot at least: Center Top point Bottom point Right point Left point</p>		<p>2nd degree equations in 2 variables: $Ax^2 + Ay^2 + Dx + Ey + F = 0$ $(x - h)^2 + (y - k)^2 = r^2$</p>
<p>General Polynomial: Must plot at least: x-intercepts y-intercept 1 point between consecutive pairs of x-intercepts</p>	 Graph's shape can vary.	<p>Polynomial Functions Degree 3 or higher: $y = a_n x^n + a_{n-1} x^{n-1} + a_{n-2} x^{n-2} + \dots + a_2 x^2 + a_1 x^1 + a_0$</p>
<p>Exponential: Must plot at least: 2 points on the graph Asymptotes: Horizontal asymptote must be shown as a dashed line if moved off the axis. Other: Must show that graph doesn't stop.</p>		<p>Exponential Functions: $y = a b^{x-h} + k$</p>
<p>Logarithmic: Must plot at least: 2 points on the graph Asymptotes: Vertical asymptote must be shown as a dashed line if moved off the axis. Other: Must show that graph doesn't stop.</p>		<p>Logarithmic Functions: $y = a \text{Log}_b(x-h) + k$</p>

* Other functions or equations may have this type of graph, but these are the main ones that was seen in college algebra.

** The function or equation can be in other forms.