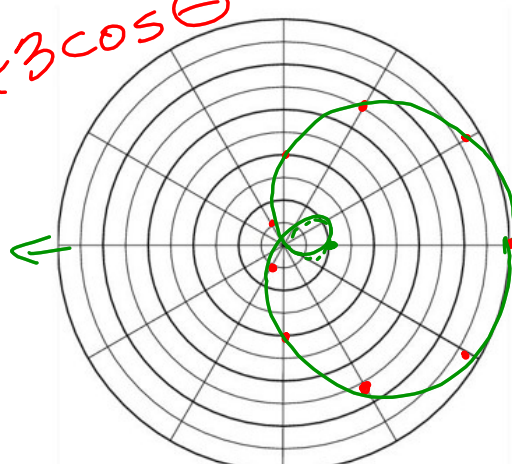
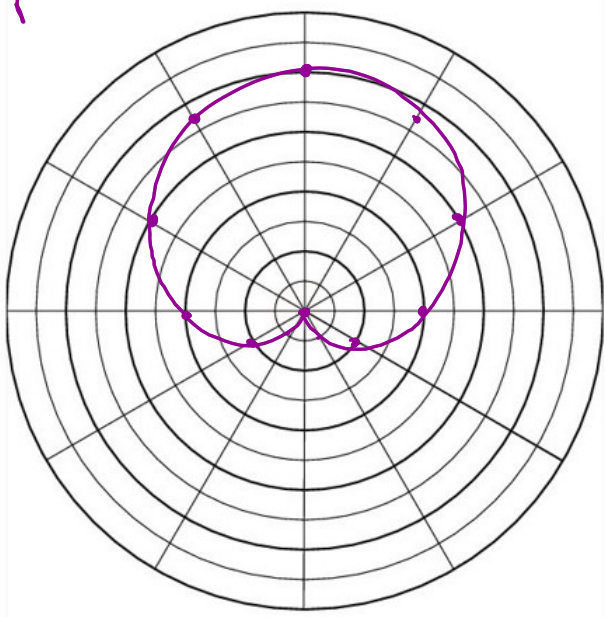


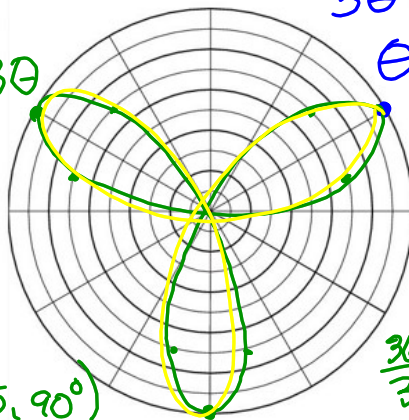
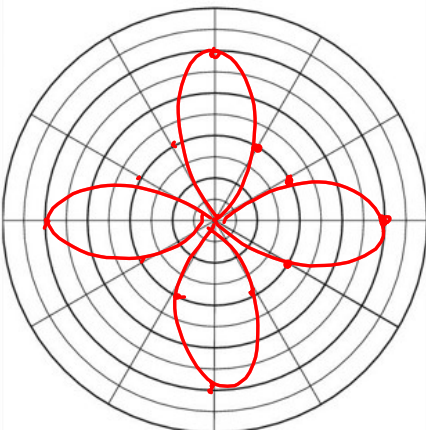
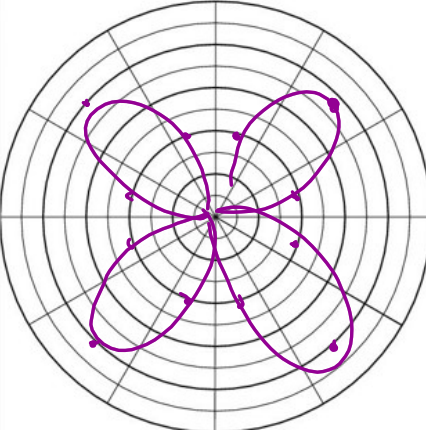
LIMACON

General Formula(s):	What values of $a$ and $b$ make it...	An example of one... Equation:						
$r = a \pm b \cos \theta$ $r = a \pm b \sin \theta$	<p>Looped:</p> $\left  \frac{a}{b} \right  < 1$ <p>Dimpled:</p> $1 < \left  \frac{a}{b} \right  < 2$ <p>Convex:</p> $\left  \frac{a}{b} \right  \geq 2$	<p><math>r = 2 + 3 \cos \theta</math></p> 						
<p>Write at least 3 different equations for a LIMACON and identify if they are horizontal or vertical and whether they are Looped, Dimpled, or Convex. Check them on your graphing calculator.</p>								
<table border="0"> <tr> <td data-bbox="290 1227 649 1282"><math>r = 2 - 3 \cos \theta</math></td> <td data-bbox="751 1227 1298 1282">Horiz, Looped, neg x-axis</td> </tr> <tr> <td data-bbox="290 1282 649 1338"><math>r = 5 + 4 \sin \theta</math></td> <td data-bbox="751 1282 1298 1338">Vert, dimpled, pos y-axis</td> </tr> <tr> <td data-bbox="290 1338 649 1417"><math>r = 4 - 2 \sin \theta</math></td> <td data-bbox="751 1338 1298 1417">Vert, Convex, neg y-axis</td> </tr> </table>			$r = 2 - 3 \cos \theta$	Horiz, Looped, neg x-axis	$r = 5 + 4 \sin \theta$	Vert, dimpled, pos y-axis	$r = 4 - 2 \sin \theta$	Vert, Convex, neg y-axis
$r = 2 - 3 \cos \theta$	Horiz, Looped, neg x-axis							
$r = 5 + 4 \sin \theta$	Vert, dimpled, pos y-axis							
$r = 4 - 2 \sin \theta$	Vert, Convex, neg y-axis							

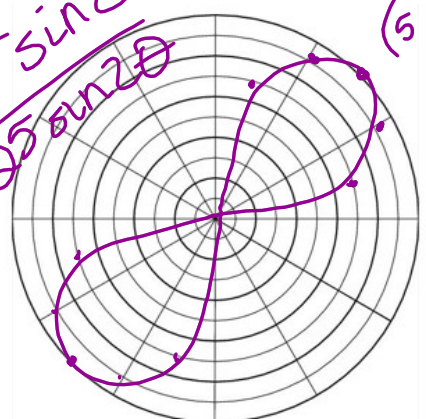
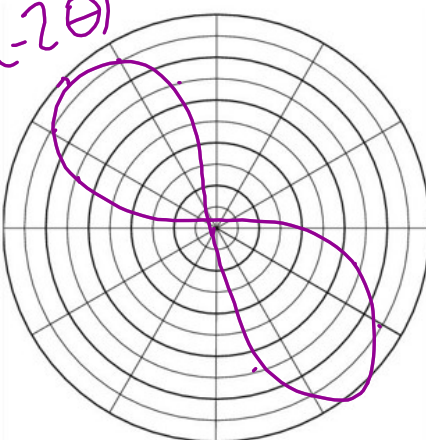
CARDIOD

<p>General Formula(s):</p> $r = a \pm b \cos \theta$ $r = a \pm b \sin \theta$	<p>It is a special case of a</p> <p><u>Limacon</u></p>	<p>An example of one...</p> <p>Equation:</p> $r = 2 + 2 \sin \theta$ 
<p>What values of <u>a</u> and <u>b</u> create a <u>cardiod</u>?</p> $\left  \frac{a}{b} \right  = 1$ <p>Write at least 2 different equations for a CARDIOD and identify if they are horizontal or vertical. Check them on your graphing calculator.</p> $r = 3 - 3 \sin \theta \quad \text{V, neg}$ $r = 2 - 2 \cos \theta \quad \text{H, neg}$		

ROSE CURVES

<p>General Formula(s):  <math>r = a \cos n\theta</math>  <math>r = a \sin n\theta</math></p> <p>Description:          (Address the difference between a sin/cos rose curve)</p> <p>sin: sym y-axis          cos: sym x-axis</p>	<p>If <math>n</math> is odd...  <math>n = \#</math> of petals (visible)</p> <p>If <math>n</math> is even...  <math>2n = \#</math> of petals</p>	<p>An example of one...          Equation:  <math>r = 5 \sin 3\theta</math></p> 
<p>An example of one...          Equation:  <math>r = 4 \cos 2\theta</math></p> <p>4 petals</p> 	<p>An example of one...          Equation:  <math>r = 4 \sin 2\theta</math></p> <p><math>2\theta = 90</math>  <math>\theta = 45</math></p> 	

LEMNISCATE

<p>General Formula in Polar:</p> $r^2 = a^2 \sin 2\theta$ $r^2 = a^2 \cos 2\theta$ <p>How does changing the value of a change the graph?</p>	<p>Description:</p> <p>Infinity Loop</p> <p>sin: y=x axis</p> <p>cos: x-axis</p>	<p>An example of one...</p> <p>Equation:</p> $r^2 = 5^2 \sin 2\theta$ $r = \sqrt{25 \sin 2\theta}$ 
<p>An example of one...</p> <p>Equation:</p> $r^2 = 5^2 \sin(-2\theta)$ 		<p>An example of one...</p> <p>Equation:</p> $r^2 = 5^2 \cos 2\theta$ 