

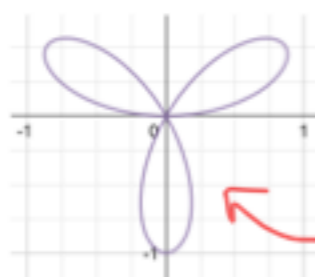
Analyze the following equations and determine how the equations affect the graphs. Specifically, comment on how a, b and c affect the graphs of $r = a + b \sin(c\theta)$ and $r = a + b \cos(c\theta)$.



$r = \sin \theta$

Handwritten: sine
y-axis
symm

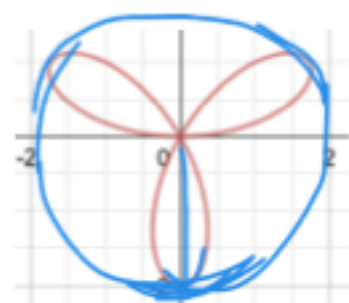
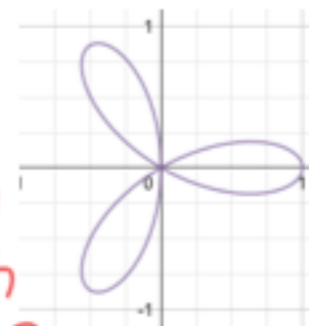
$r = \cos \theta$



$r = \sin 3\theta$

Handwritten: ODD =
petals

$r = \cos 3\theta$

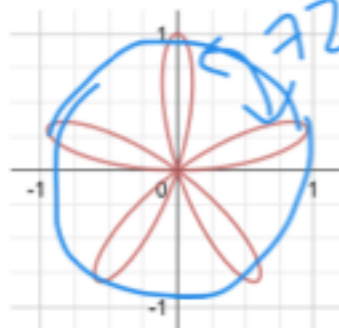
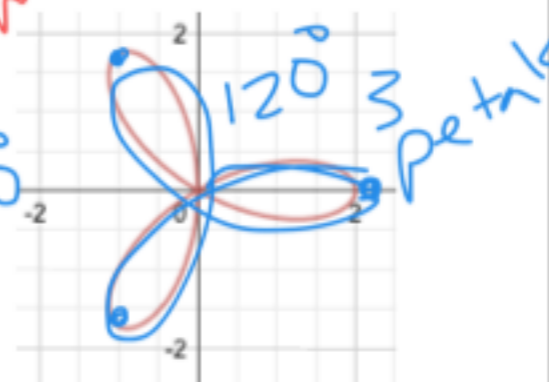


$r = 2 \sin 3\theta$

Handwritten: tips
of
petals

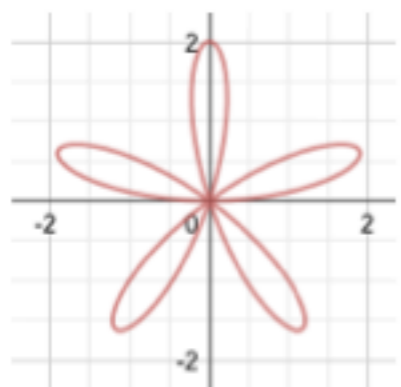
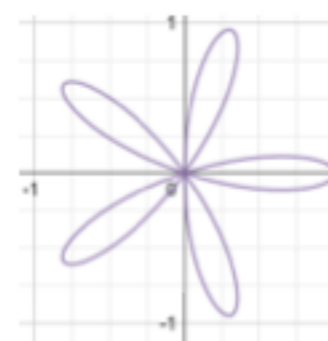
$r = 2 \cos 3\theta$

Handwritten: cos
x-axis
symm
 $\frac{360}{3} = 120^\circ$



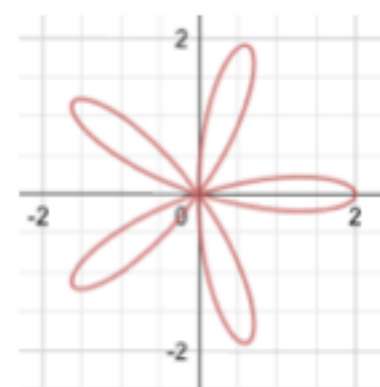
$r = \sin 5\theta$

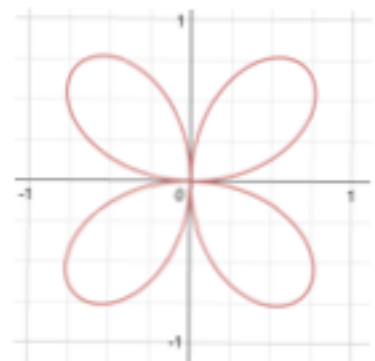
$r = \cos 5\theta$



$r = 2 \sin 5\theta$

$r = 2 \cos 5\theta$

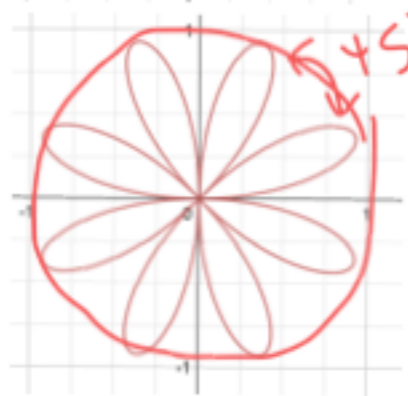
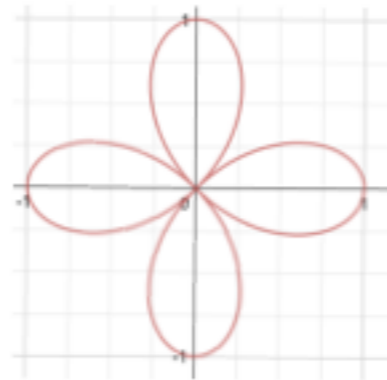




$$r = \sin 2\theta$$

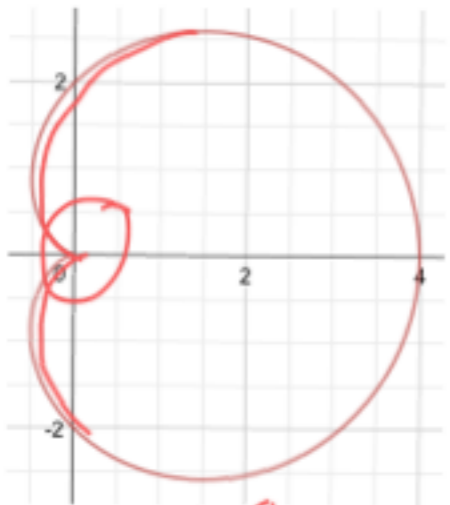
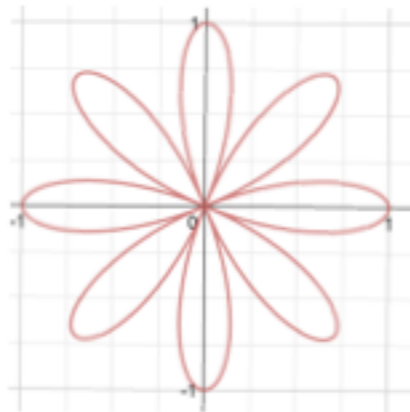
even
twice
petals

$$r = \cos 2\theta$$

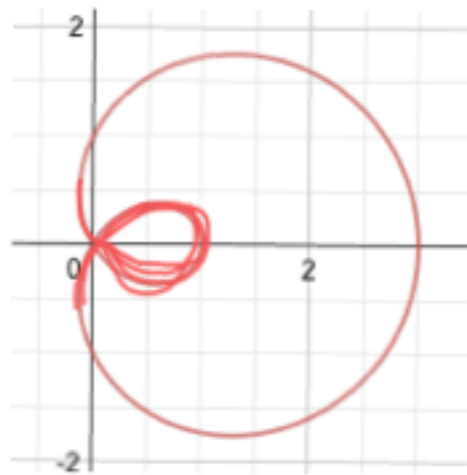


$$r = \sin 4\theta$$

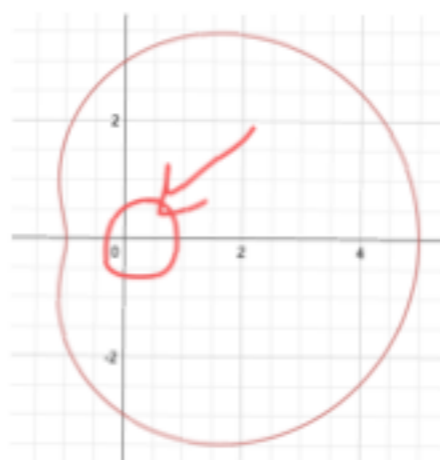
$$r = \cos 4\theta$$



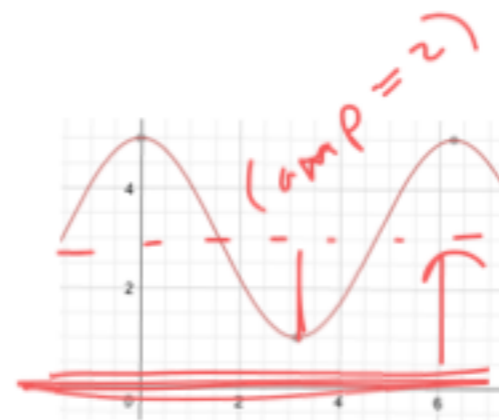
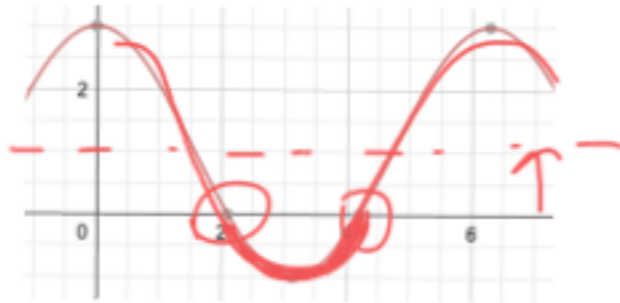
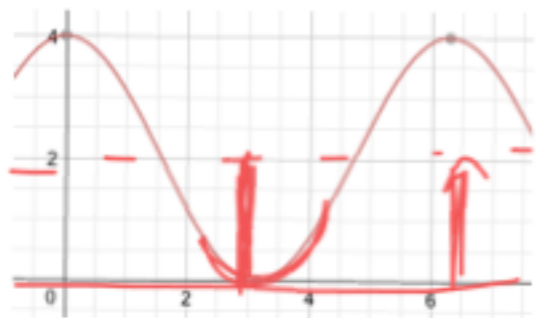
$$r = 2 + 2\cos\theta$$



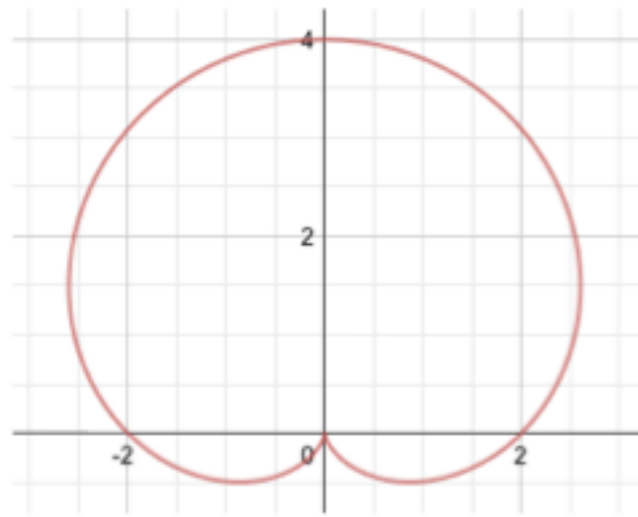
$$r = 1 + 2\cos\theta$$



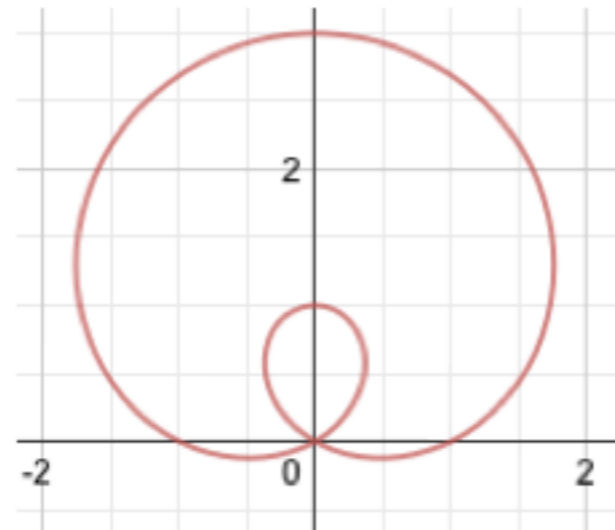
$$r = 3 + 2\cos\theta$$



$$r = 2 + 2\sin\theta$$



$$r = 1 + 2\sin\theta$$



$$r = 3 + 2\sin\theta$$

