Name:_____Date:_____Period:___

1) Eliminate the parameter: $x = \frac{t}{2}$ and $y = 3t - 1$

2) The point $\left(\sqrt{2},\ -\frac{\pi}{4}\right)$ is in polar coordinates. Convert it to ***exact*** rectangular coordinates.

3) Convert from rectangular coordinates to polar coordinates for $\left(-1,\ \sqrt{3}\right)$

4) Convert the rectangular equation to polar form: $2x - 3y - 1 = 0$

5) Choose the equation whose graph is a rose curve.

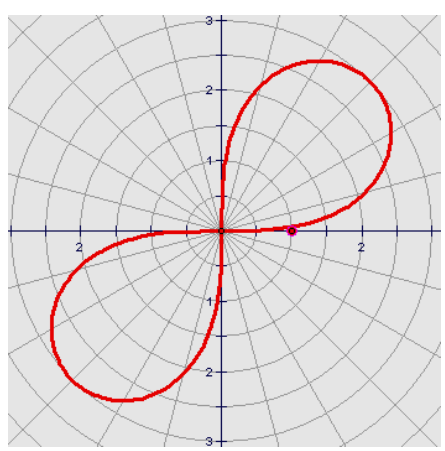
$r = 2\cos\theta$

$r^2 = 4\cos 2\theta$

$r = 2 + 4\cos\theta$

$r = 2\cos 4\theta$

6) Choose the equation corresponding to the graph shown below



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

$r^2 = 9\sin 2\theta$

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

$r = 9\sin 2\theta$

Let $A(2, -1), B(3, 1), C(-4, 2)$, and $D(1, -5)$

7) Find the component form, magnitude, and direction (in standard position) of the vector $\overrightarrow{AC} + \overrightarrow{BD}$

8) Circle the polar equation(s) whose graph is a parabola

$$r = \frac{15}{2+3\cos\theta}$$

$$r = \frac{10}{2+2\cos\theta}$$

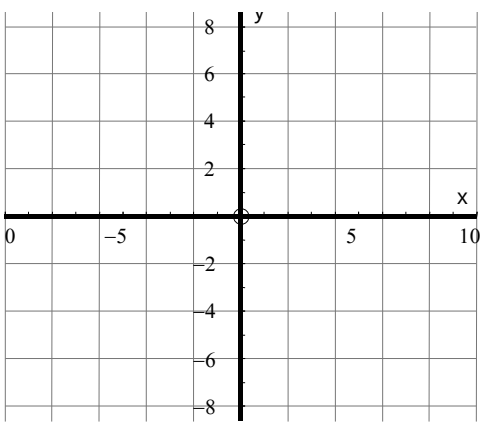
$$r = \frac{10}{3-2\sin\theta}$$

$$r = \frac{20}{2-4\cos\theta}$$

9) Find the angle between the vectors:

$\mathrm{u} = \langle -2, 4 \rangle$, $\mathrm{v} = \langle 6,\ 4 \rangle$

10) Sketch the curve of the graph, represented by the following parametric equations from $-2 \le T \le 2$ and complete the table.



$$X(T) = T^2 - 3$$

$$Y(T) = \frac{T^3}{2} - 3T + 1$$

T	X	Y
-2		
-1		
0		
1		
2		

11) Make a table and graph $r = 8\cos 3\theta$ for $[0,\ 2\pi]$