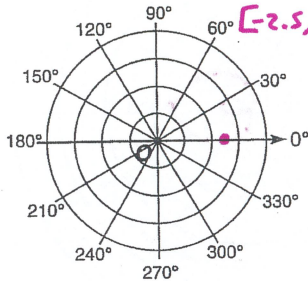


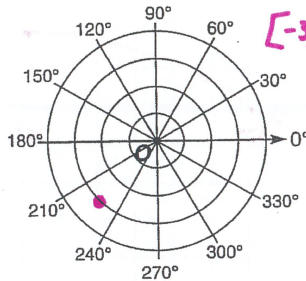
1: Polar Coordinates

Graph each of the following points, then give two other coordinates that name the same point:

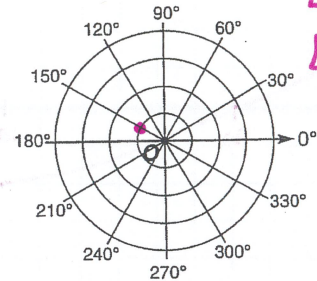
1. $[2.5, 0^\circ]$ [$-2.5, -180^\circ$]
[$2.5, 360^\circ$]



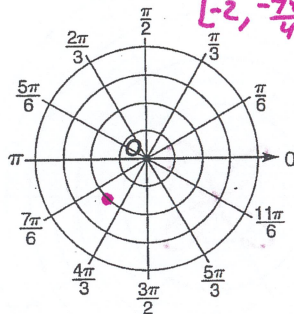
2. $[3, -135^\circ]$ [$3, 225^\circ$]
[$-3, 45^\circ$]
[$-3, -315^\circ$]



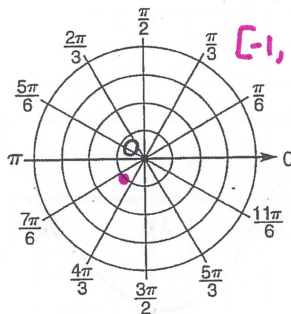
3. $[-1, -30^\circ]$ [$-1, 330^\circ$]
[$1, 150^\circ$]
[$1, -210^\circ$]



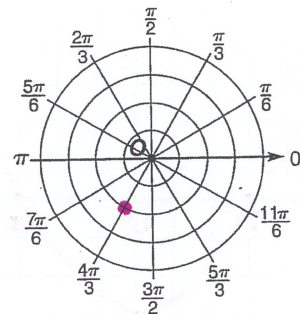
4. $[-2, \frac{\pi}{4}]$ [$2, \frac{5\pi}{4}$]
[$2, -\frac{3\pi}{4}$]
[$-2, -\frac{7\pi}{4}$]



5. $[1, \frac{5\pi}{4}]$ [$-1, \frac{\pi}{4}$]
[$1, -\frac{3\pi}{4}$]
[$-1, -\frac{7\pi}{4}$]

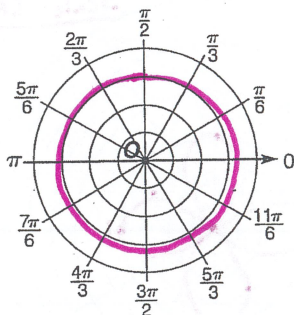


6. $[2, -\frac{2\pi}{3}]$ [$2, \frac{4\pi}{3}$]
[$-2, \frac{\pi}{3}$]
[$-2, -\frac{5\pi}{3}$]

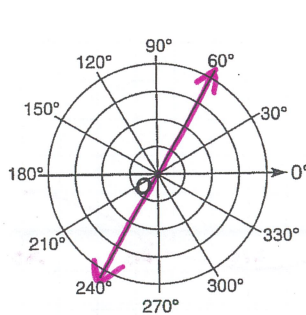


Graph each of the following polar equations:

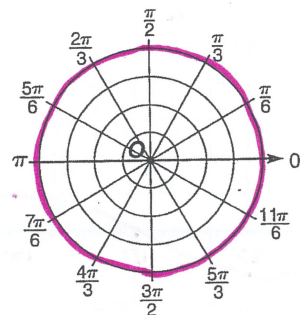
7. $r = 3$



8. $\theta = 60^\circ$



9. $r = 4$



Find the distance between the two points with the given polar coordinates:

10. $P_1[6, 90^\circ]$ and $P_2[2, 130^\circ]$

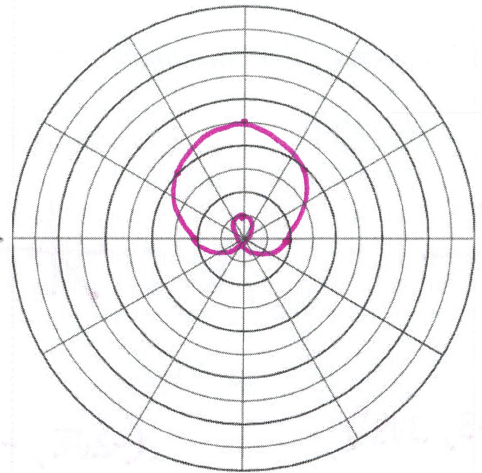
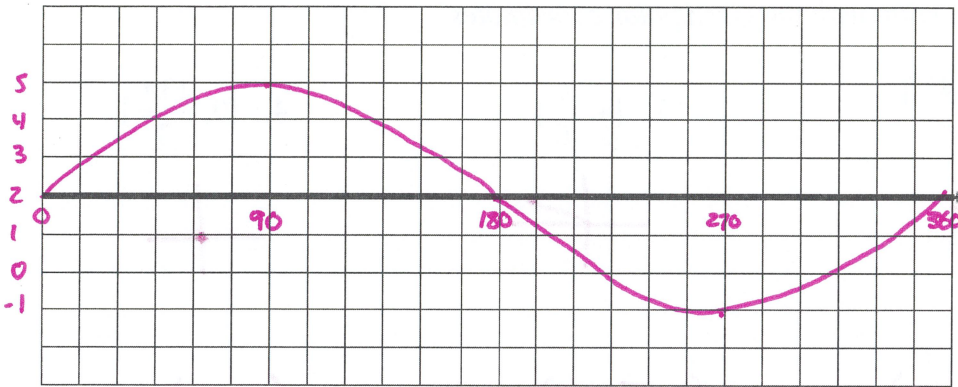
$d \approx 4.65$

11. $P_1[-4, 85^\circ]$ and $P_2[1, 105^\circ]$

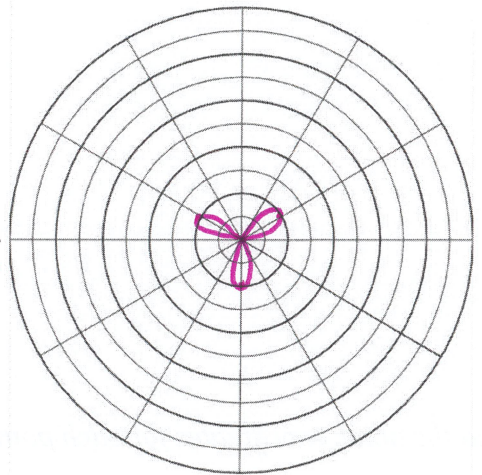
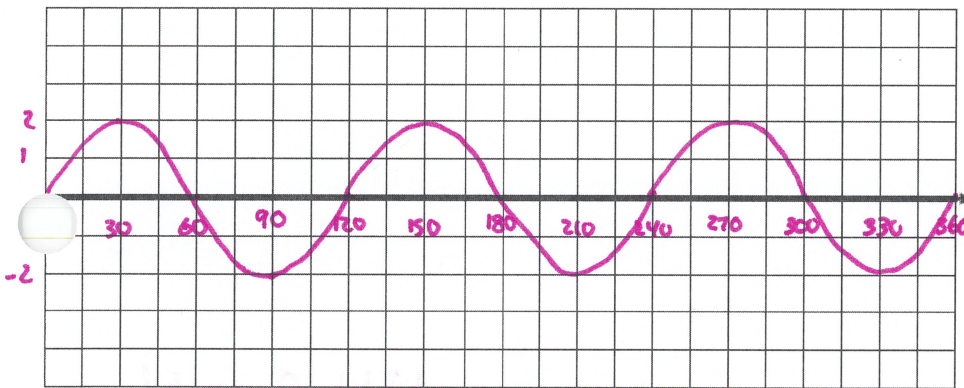
$d \approx 4.95$

NAME _____

Problem 4: $r = 2 + 3\sin \theta$ $a < b$



Problem 5: $r = 2 \sin 3\theta$ $\frac{2\pi}{3} = 120^\circ$



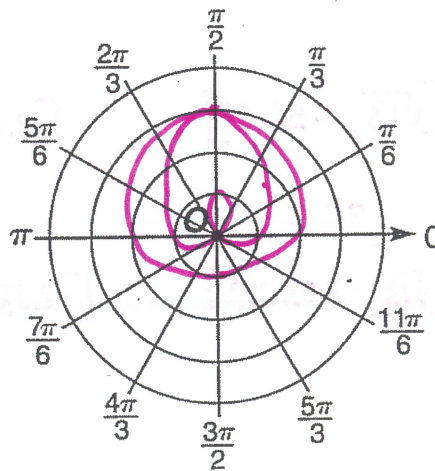
1. Challenge Problem:

Graph the system of polar equation, then use the graph to solve the system.

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

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

$$\frac{\pi}{2}$$



9.3: Polar and Rectangular Coordinates

Find the rectangular coordinates for each point with the given polar coordinates:

1. $[6, 120^\circ]$



$(-3, 3\sqrt{3})$

2. $[-4, 45^\circ]$



$(-2\sqrt{2}, -2\sqrt{2})$

3. $[4, \frac{\pi}{6}]$



$(2\sqrt{3}, 2)$

4. $[0, \frac{13\pi}{3}]$



$(0, 0)$

Find the polar coordinates for each point with the given rectangular coordinates: *Watch Quadrants!*

5. $(2, 2)$



$[2\sqrt{2}, 45^\circ]$

6. $(2, -3)$

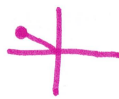


$[\sqrt{13}, -56.3^\circ]$

or

$[\sqrt{13}, 303.7^\circ]$

7. $(-3, \sqrt{3})$



$[2\sqrt{3}, 150^\circ]$

or

$[-2\sqrt{3}, -30^\circ]$

8. $(-5, -8)$



$[\sqrt{89}, 238^\circ]$

or

$[-\sqrt{89}, 58^\circ]$