

Ch 6C Review...What to know:

6.3

- Know how to plot polar coordinates
- Know how to convert coordinates:
 - o From Polar to Rectangular
 - o From Rectangular to Polar
- Know how to convert equations:
 - o From Polar to Rectangular
 - o From Rectangular to Polar

6.4

- Know how to identify all polar graphs (i.e. KNOW YOUR EQUATIONS!)
- Know how to sketch all polar graphs by hand.

Prepare for Review Questions from any chapter.

I. Identify the polar graphs by name. Then sketch each graph by hand.

1. $r = 3\sin 6\theta$

4. $r^2 = 9\cos 2\theta$

2. $r = 3\cos \theta$

5. $r = 7 - 3\sin \theta$

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

6. $r = 1 - 2\cos \theta$

II. Plot the polar coordinates. .

7. $A(-6, 90^\circ)$

8. $B(5, \frac{4\pi}{3})$

9. $C(-4, 180^\circ)$

III. Convert to Polar.

10. $(-4, -4)$

11. $(-2, 0)$

12. $(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2})$

13. $(-3, \pi)$

14. $(0, 7)$

IV. Convert to Rectangular.

15. $(-4, \frac{\pi}{3})$

16. $(5, \frac{3\pi}{2})$

17. $(0, \frac{5\pi}{4})$

18. $(10, \frac{\pi}{2})$

V. Convert each equation from Polar to Rectangular.

19. $\theta = \frac{\pi}{6}$

20. $r = 3$

21. $r = 8\cos \theta$

22. $r = 2\sin 2\theta$

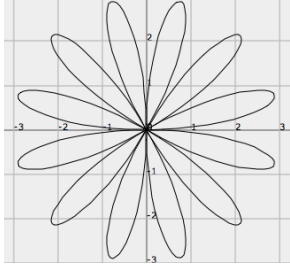
VI. Convert each equation from Rectangular to Polar.

23. $x^2 + y^2 = 20$

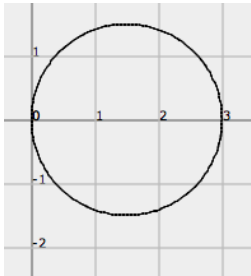
24. $x^2 + y^2 - 6y = 0$

Chapter 6C Review Answers:

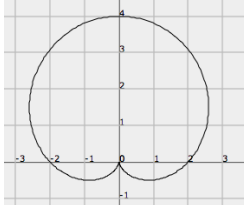
1. Rose curve



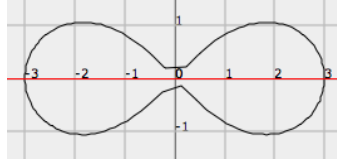
2. Circle with center on x-axis



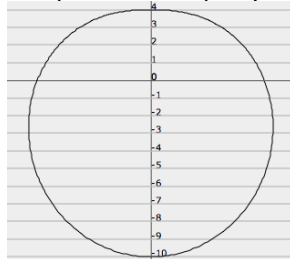
3. Limacon – cardioid (must include the pole)



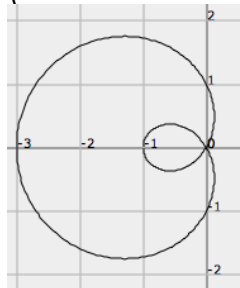
4. Lemniscate on the x-axis



5. Limacon – curve surrounding the pole (no pole, no loop, no dimple)



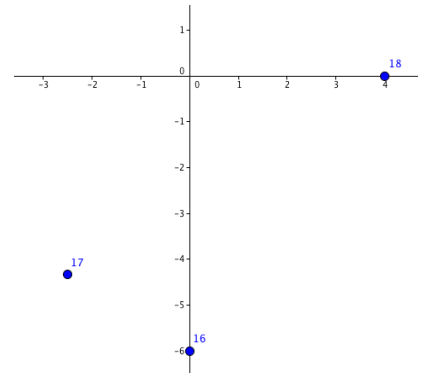
6. Limacon – inner loop (must include the pole)



7. See below

8. See below

9. See below



10. $\left(4\sqrt{2}, \frac{5\pi}{4}\right)$

11. $(2, \pi)$

12. $\left(1, \frac{\pi}{4}\right)$

13. $(4.343, 2.333)$

14. $\left(7, \frac{\pi}{2}\right)$

15. $(-2, -2\sqrt{3})$

16. $(0, -5)$

17. $(0, 0)$

18. $(0, 10)$

19. $y = \frac{\sqrt{3}}{3}x$

20. $x^2 + y^2 = 9$

21. $x^2 + y^2 - 8x = 0$

22. $(x^2 + y^2)^3 = 16x^2y^2$

23. $r = 2\sqrt{5}$

24. $r = 6\sin\theta$