Polar Coordinates- HW Problems

Convert the points from polar coordinates to Cartesian coordinates.

1. $(3, \frac{\pi}{6})$
2. $(-1, \frac{3\pi}{4})$
3. $(2, \frac{5\pi}{3})$
4. $(4, -\frac{2\pi}{3})$

Represent in polar coordinates with $r > 0$ and $0 \leq \theta < 2\pi$.

5. $(\sqrt{3}, -1)$
6. $(-1, 1)$

Identify the curve by converting the equation to Cartesian coordinates.

7. $r = 3\sec(\theta)$
8. $r = 4\cos(\theta)$
9. $r = 5\csc(\theta)$
10. $r = [tan(\theta)][\sec(\theta)]$

Sketch by plotting points and then write the equation in Cartesian coordinates.

11. $r = -2\cos(\theta)$

12. $r = 1 - \sin(\theta)$

13. $r^2 = 9\sin(2\theta)$

Find the points where the tangent line to the curve is horizontal or vertical.

14. $r = e^{\theta}$

15. $r = \cos(\theta)$

16. $r = 1 - \sin(\theta)$