$(x,y) \longrightarrow (r,\theta)$

$r^2 = x^2+y^2$ $r=\sqrt{x^2+y^2}$ $x = r\cos\theta$ $y = r\sin\theta$	Convert the rectangular equation to polar form. Sketch the graph of the rectangular equation. A) $x = 3$ $r\cos\theta = 3$ $r = \frac{3}{\cos\theta}$ $r = 3\sec\theta$ B) $y = 3$ $r\sin\theta = 3$ $r = \frac{3}{\sin\theta}$ $r = 3\csc\theta$
$(x-3)^2$ $(x-3)(x-3)$	B) $5x - 10y = 20$ $x - 2y = 4$ $r\cos\theta - 2r\sin\theta = 4$ $r(\cos\theta - 2\sin\theta) = 4$ $r = \frac{4}{\cos\theta - 2\sin\theta}$ C) $(x - 3)^2 + (y - 2)^2 = 13$ $(x^2-6x+9)+(y^2-4y+4)=1$ $\boxed{x^2+y^2}-6x-4y+13=13$ $r^2-6r\cos\theta-4r\sin\theta=0$ $\frac{r^2}{r} = \frac{6r\cos\theta}{r} + \frac{4r\sin\theta}{r}$ $r = 6\cos\theta + 4\sin\theta$