pg 803 #70-98 even

(70) $(2, 5\pi/4)$

$r \quad \theta$

$x = r\cos\theta$

$x = 2\cos\left(\frac{5\pi}{4}\right)$

$x = 2 \cdot -\frac{\sqrt{2}}{2} = -\sqrt{2}$

$y = r\sin\theta$

$y = 2\sin(5\pi/4)$

$y = 2 \cdot -\frac{\sqrt{2}}{2} = -\sqrt{2}$

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

(72) $(0, \pi/2)$

$x = r\cos\theta$

$x = 0 \cdot \cos(\pi/2) = 0$

$y = r\sin\theta$

$y = 0 \cdot \sin(\pi/2)$

$y = 0$

$(0, 0)$

(74) $(-\sqrt{5}, \sqrt{5})$ → 2nd

$x^2+y^2=r^2$

$5+5=r^2$

$10=r^2$

$r=\sqrt{10}$

$\tan\theta=\frac{y}{x}$

$\tan\theta=\frac{\sqrt{5}}{-\sqrt{5}}=-1$

$\theta=\tan^{-1}(-1)$

$\theta=3\pi/4$

$(\sqrt{10}, 3\pi/4)$

(76) $(3,-4)$ → 4th

$x^2+y^2=r^2$

$9+16=r^2$

$25=r^2$

$5=r$

$\tan\theta=\frac{y}{x}$

$\tan\theta=\frac{-4}{3}$

$\theta=\tan^{-1}(-4/3)$

$\theta=5.356$

$(5, 5.356)$

(78) $x^2+y^2=20$

$r^2=20$

$r=2\sqrt{5}$

(80) $x^2+y^2-4x=0$

$r^2-4r\cos\theta=0$

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

$r=4\cos\theta$

(82) $xy = -2$

$r\cos\theta \cdot r\sin\theta = -2$

$r^2\cos\theta\sin\theta = -2$

$r^2 = \dfrac{-2}{\cos\theta\sin\theta}$

$r^2 = -2\sec\theta\csc\theta$

(84) $r = 12$

$r^2 = 12^2$

$x^2 + y^2 = 144$

(86) $r = 8\sin\theta$

$r^2 = 8r\sin\theta$

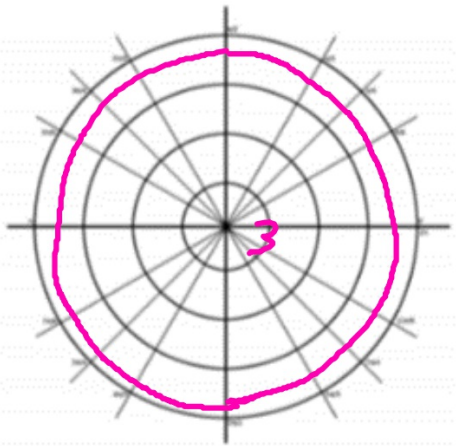
$x^2 + y^2 = 8y$

(88) $r^2 = \cos(2\theta)$

$x^2 + y^2 = \cos(2\theta)$

$x^2 + y^2 = \cos^2\theta - \sin^2\theta$

(90) $r = 11$



(92) $r = \cos 5\theta$

$\cos 5\theta = 1$

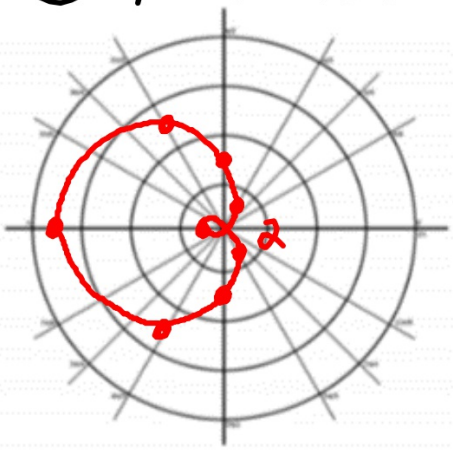
$5\theta = \cos^{-1}(1)$

$5\theta = 0, 2\pi, 4\pi, 6\pi, 8\pi$

$\theta = 0, \frac{2\pi}{5}, \frac{4\pi}{5}, \frac{6\pi}{5}, \frac{8\pi}{5}$

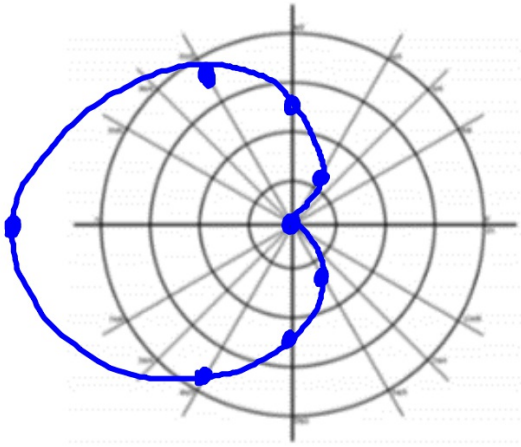
0	$\pi/2$	π	$3\pi/2$	$2\pi/5$	$4\pi/5$	$6\pi/5$	$8\pi/5$
1	0	-1	0	1	1	1	1
				↓	↓	↓	↓
				.4	.8	1.2	1.6

(94) $r = 3 - 4\cos\theta$



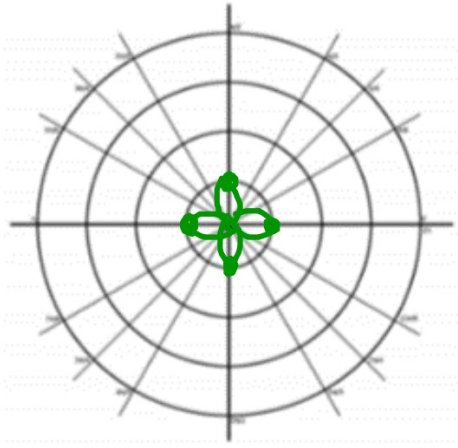
	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	π	$\frac{4\pi}{3}$	$\frac{3\pi}{2}$	$\frac{5\pi}{3}$
1	1	3	5	7	5	3	1

(96) $r = 5 - 5\cos\theta$



0	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	π	$\frac{4\pi}{3}$	$\frac{3\pi}{2}$	$\frac{5\pi}{3}$
0	2.5	5	7.5	10	7.5	5	2.5

(98) $r = \cos 2\theta$



$\cos 2\theta = 1$

$2\theta = \cos^{-1}(1)$

$2\theta = 0, \pi, 2\pi, 3\pi$

$\theta = 0, \pi/2, \pi, 3\pi/2$

0	$\pi/2$	π	$3\pi/2$				
1	-1	1	-1				