

Section 8.2 Exercises:

I) Identify the following polar equations as (line, circle , spiral , cardioid, limacon)

1) $\frac{2}{r} = 2 \cos \theta - \sin \theta$, 2) $r + \frac{1}{2}(\cos \theta + 2) = 0$, 3) $\theta = -\frac{\pi}{3}$

4) $r - 3 \sin \theta = 2$, 5) $r - \frac{3}{2} \cos \theta + 1 = 0$, 6) $r + 2(\sin \theta - 1) = 0$

7) $r \sec \theta = -2$, 8) $r = 5 \csc \theta$, 9) $\frac{2}{r} = -\csc \theta$, 10) $\frac{r}{3} = \sec \theta$

11) $\frac{r}{3} = \sin \theta - 2 \cos \theta$, 12) $\frac{1}{2}r = -2$, 13) $2r = -\theta$, $\theta \leq 0$

14) $r = -\frac{\theta}{2}$, $\theta \geq 0$, 15) $\frac{1}{2}r = \theta$, $\theta \leq 0$, 16) $\theta = -2$

17) $r + \frac{3}{2} = \frac{1}{2} \sin \theta$, 18) $\frac{2}{r} = \frac{1}{3 \cos \theta - \sin \theta}$, 19) $\theta = -\frac{4\pi}{3}$

20) $2r = \frac{3}{\sin \theta + 5 \cos \theta}$, 21) $\frac{1}{2}r = \theta$, $\theta \geq 0$, 22) $\frac{3}{2}r = 5$

23) $-r \csc \theta = 7$, 24) $r = 4 \sec \theta$, 25) $\theta = \frac{7}{2}$, 26) $r = -\sqrt{5}$

27) $\frac{2r}{\cos \theta} = 5$, 28) $2r + \cos \theta = -2$, 29) $3r - \sin \theta = 1$

30) $2r - 5 \cos \theta = -4$, 31) $r + \frac{3}{2}(\cos \theta + 1) = 3$, 32) $2\theta = -9$

33) $r(\frac{1}{2} \sin \theta - \cos \theta) = 2$, 34) $3r \sec \theta = -1$, 35) $2r = -\csc \theta$

36) $2\theta = -\frac{\pi}{3}$, 37) $-\frac{3}{r} = \cos \theta + \frac{3}{2} \sin \theta$, 38) $-r = \sqrt{2}\theta$, $\theta \geq 0$

39) $r^2 = 9$, 40) $6r - \sin \theta + \cos \theta = 0$, 41) $2r + 3 \sin \theta + 4 = 0$

II) Match the following polar equations (1-31) with the given graphs (a-v)

1) $2r - \cos \theta = 2$, 2) $2r = \frac{1}{1 - \cos \theta}$, 3) $r - 2(\sin \theta - 1) = 0$

4) $r - 2(\cos \theta - 1) = 3$, 5) $r = 2\theta$, $\theta \geq 0$, 6) $r = -\theta$, $\theta \leq 0$

7) $r = 2$, 8) $r = -3 \csc \theta$, 9) $r = \frac{-2}{2 \cos \theta - \sin \theta}$, 10) $2r = -\sec \theta$

11) $\frac{1}{3}r = \csc \theta$, 12) $r^2 = 2$, 13) $\frac{1}{2}r = \cos \theta$, 14) $r = -2 \sin 2\theta$

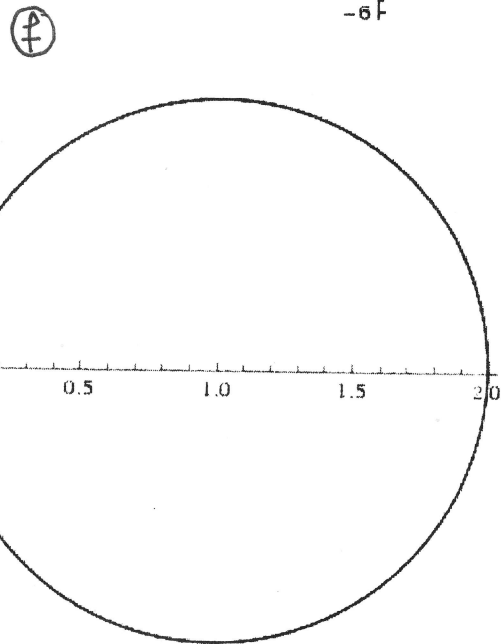
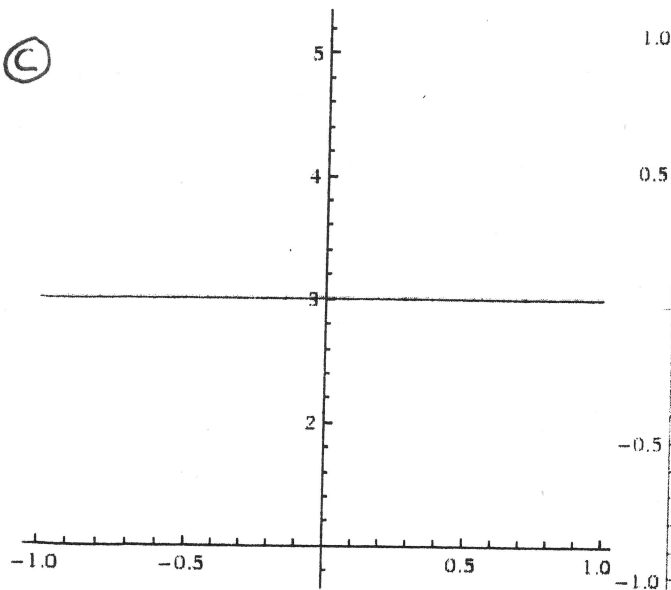
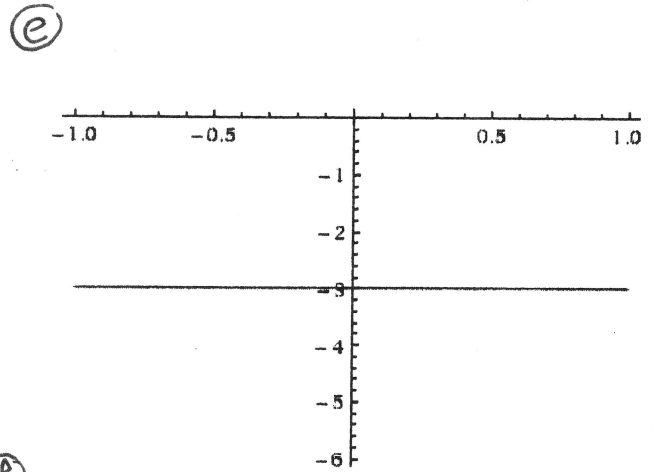
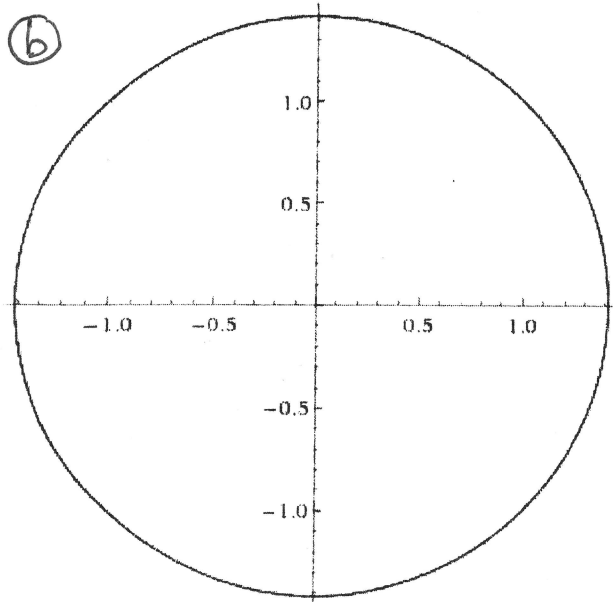
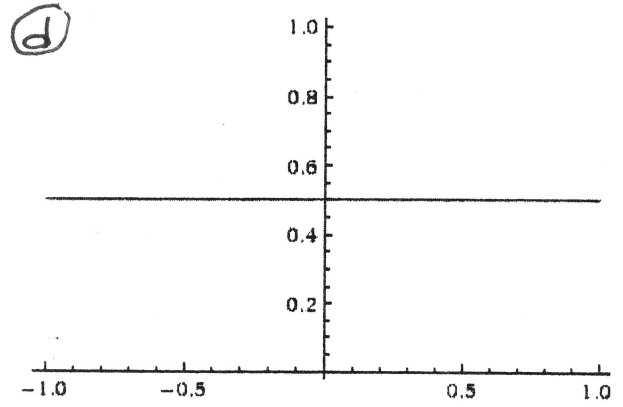
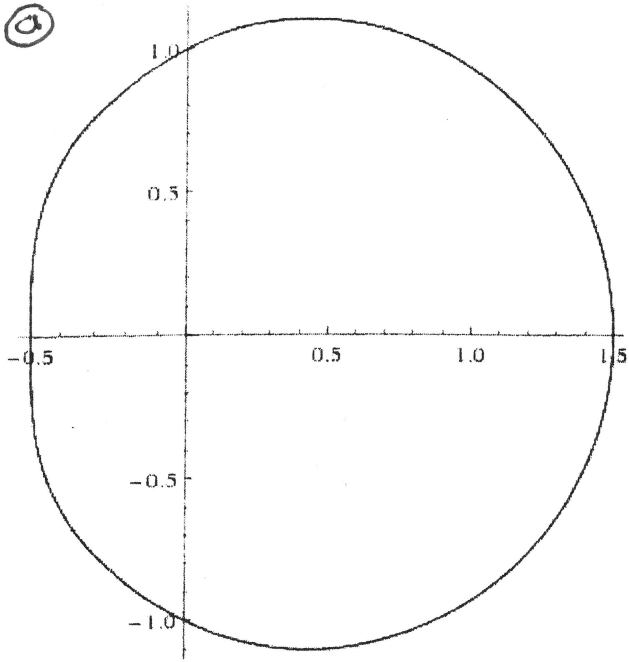
15) $2r \csc \theta = -1$, 16) $r - 2r \sin \theta = 2$, 17) $r = \frac{1}{2} \csc \theta$,

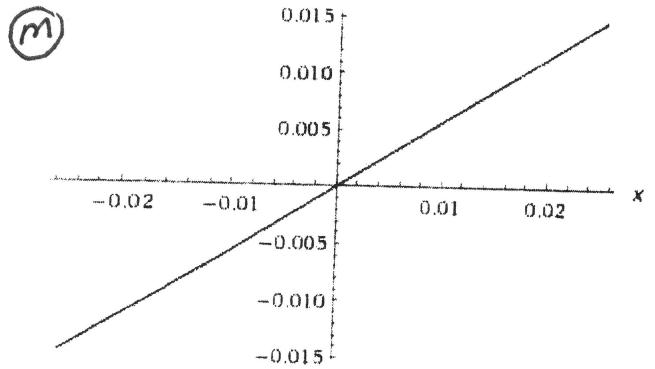
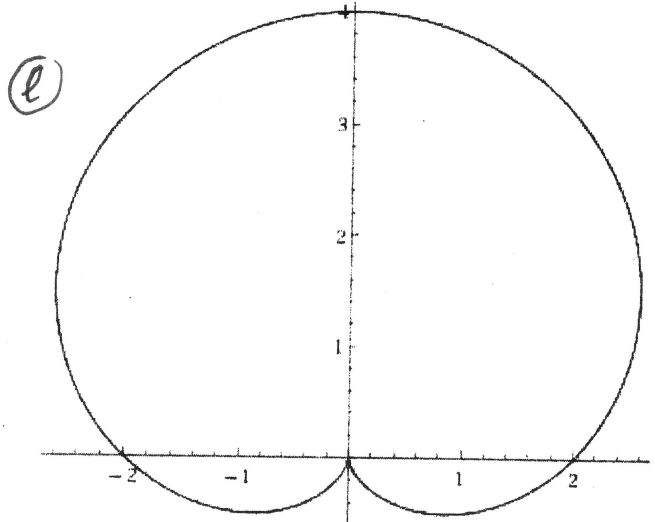
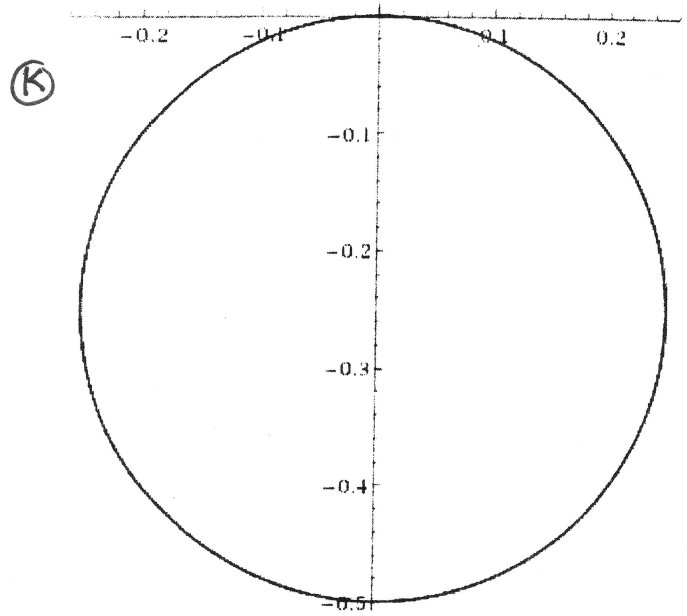
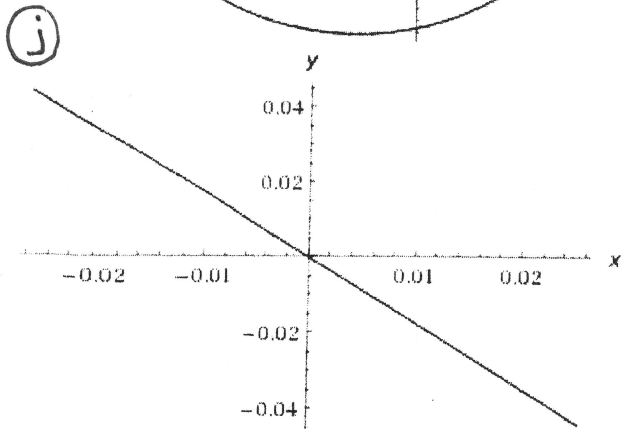
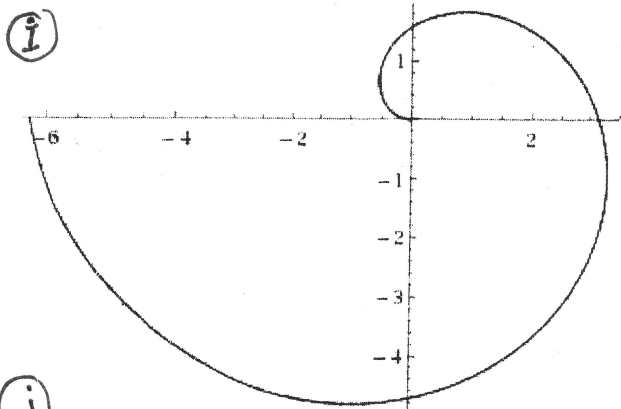
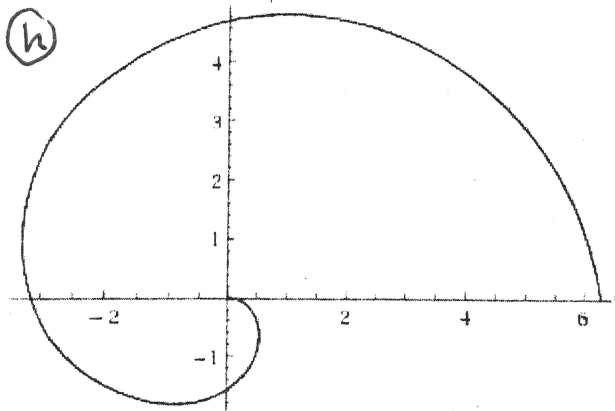
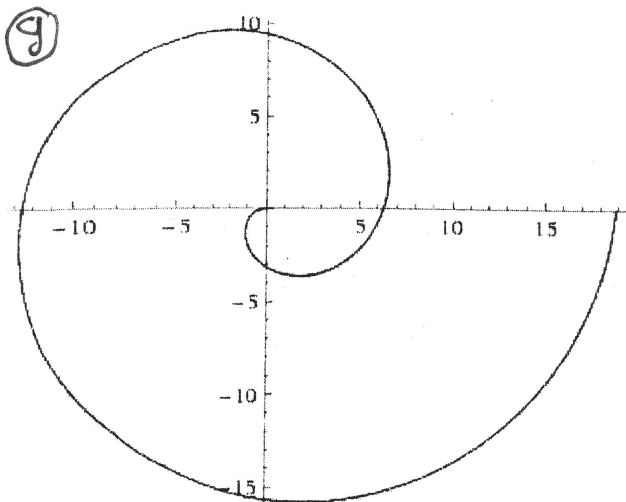
18) $r = -\frac{1}{3} \cos 3\theta$, 19) $r = -2\theta$, $\theta \geq 0$, 20) $\theta = -3$,

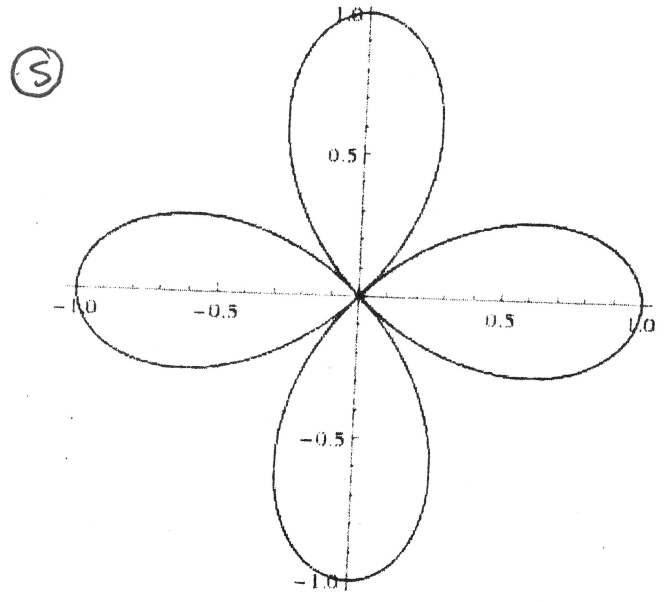
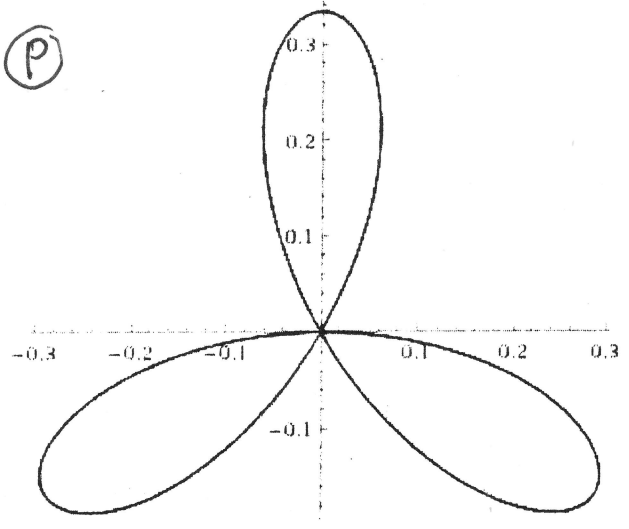
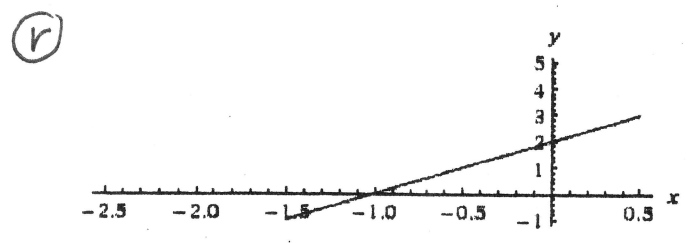
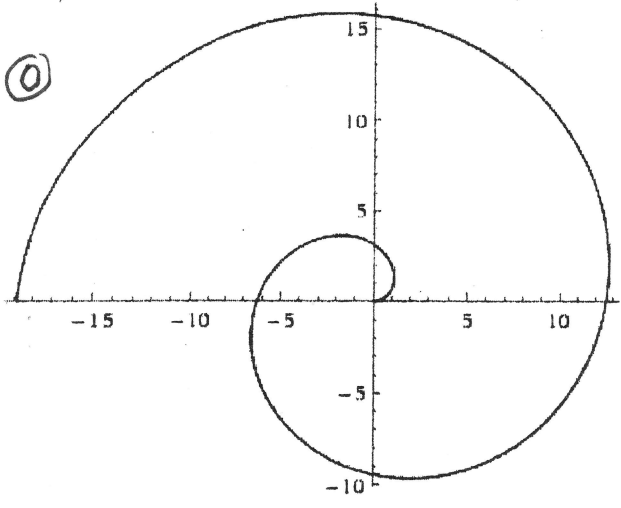
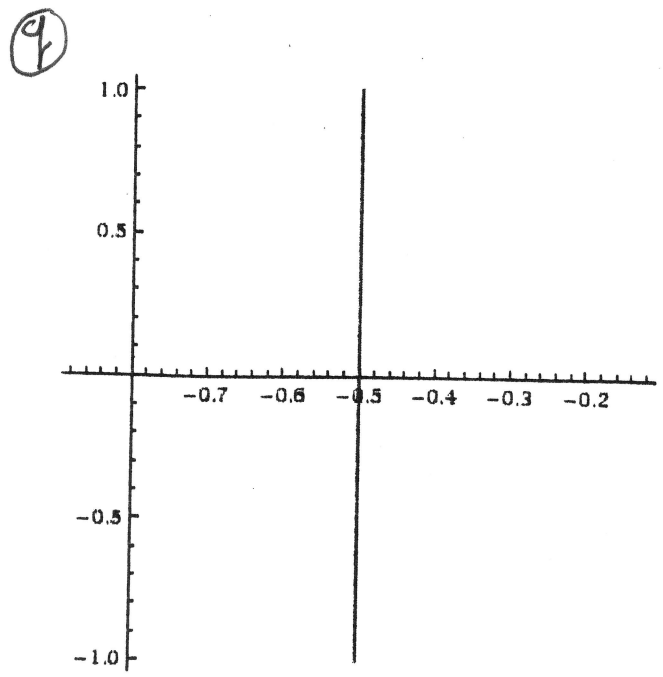
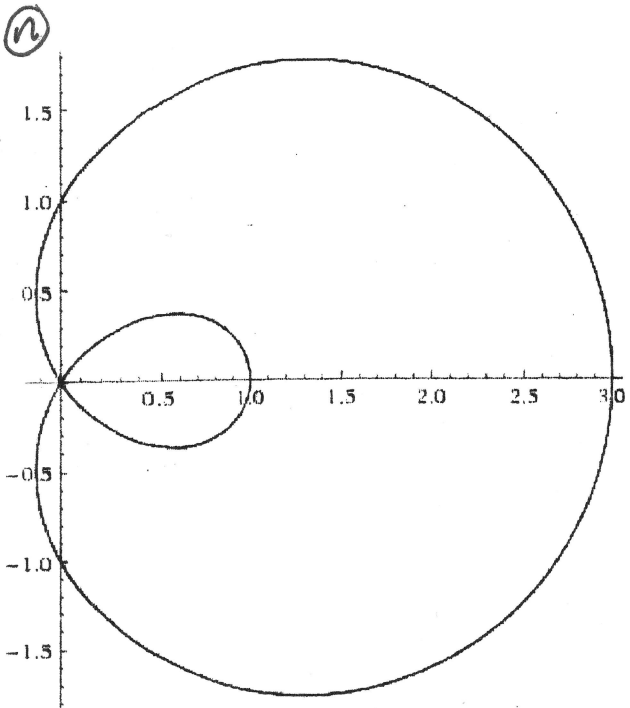
21) $r = \theta$, $\theta \leq 0$, 22) $\theta = -\frac{7\pi}{4}$, 23) $r \sec \theta = -2$, 24) $r = \frac{1}{2} \sin \theta$

25) $\frac{1}{2}r + \sin \theta - 1 = 0$, 26) $2r = -\cos \theta + 2$, 27) $r = 3 - 2(\cos \theta + 1)$

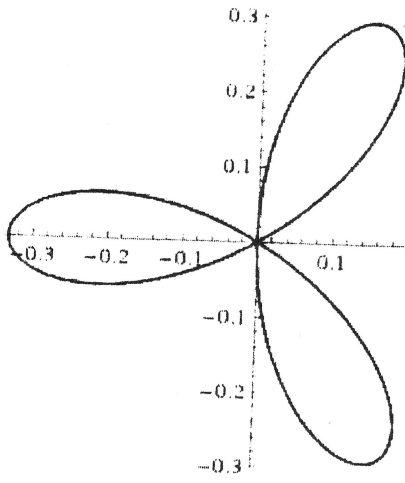
28) $\theta = -\frac{5\pi}{4}$, 29) $r = \frac{1}{2} \cos 2\theta$, 30) $r = \frac{1}{3} \sin 3\theta$, 31) $\theta = 1$



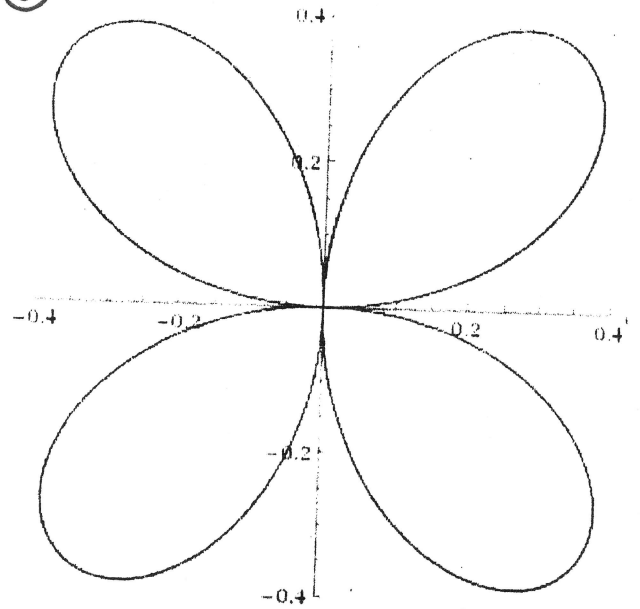




(t)



(u)



(v)

