HW 10.6 1-15 every other odd, 2-16 every other even

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8:50 PM

① hyperbola focus at orgin $e=\frac{7}{4}$ directrix $y=6$

$$r=\frac{\left(\frac{7}{4}\right)(6)}{1\pm\frac{7}{4}\sin\theta}$$

$$r=\frac{42}{1+7\sin\theta}$$

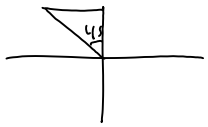
② Parabola directrix $x=4$ focus at orgin

$$r=\frac{(-4)(1)}{1+\cos\theta}=\frac{-4}{1+\cos\theta}$$

⑤ Parabola focus at orgin vertex $(4,3\pi/2)$

$$r=\frac{(1)(8)}{1-\sin\theta}$$

$$r=\frac{8}{1-\sin\theta}$$



$$x=r\cos\theta$$
$$x=2\sqrt{2}$$
$$y=r\sin\theta$$
$$y=-2\sqrt{2}$$

⑥ Ellipse $e=0.8$ vertex $(1,\frac{\pi}{2})$ focus at orgin

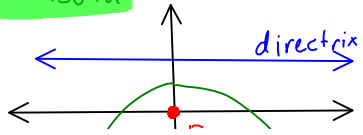
$$0^2=(1^2)+b^2$$
$$-1=b^2$$
$$b=1$$

$$r=\frac{(0.8)(1)}{1+\cos\theta}=\frac{.8}{1+\cos\theta}$$

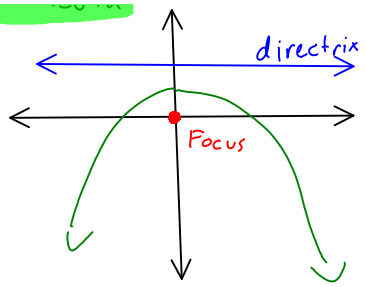
⑨ $r=\frac{1}{1+\sin\theta}$

ⓐ $e=1$ ⓑ parabola

ⓒ $y=1$ ⓓ



ⓒ $y = 1$ ⓓ



⑩ $r = \dfrac{6}{3+2\sin\theta} = \dfrac{6}{3\left(1+\frac{2}{3}\sin\theta\right)}$

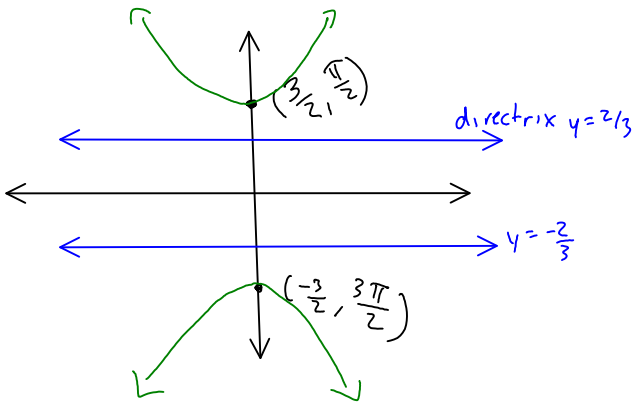
$r = \dfrac{2}{1+\frac{2}{3}\sin\theta}$

ⓐ $e\left(\frac{2}{3}\right) = 2$ $e = 3$ ⓑ hyperbola

ⓒ $y = \frac{\pm 2}{3}$

ⓓ $\theta = \frac{\pi}{2}$ $r = \frac{6}{4} = \frac{3}{2}$

$\theta = \frac{3\pi}{2}$ $r = \frac{3}{2}$



⑬ $r = \dfrac{9}{6+2\cos\theta} = \dfrac{9}{6\left(1+\frac{1}{3}\cos\theta\right)}$

$r = \dfrac{3/2}{1+\frac{1}{3}\cos\theta}$

ⓐ $e = \frac{1}{3}$ ⓑ ellipse

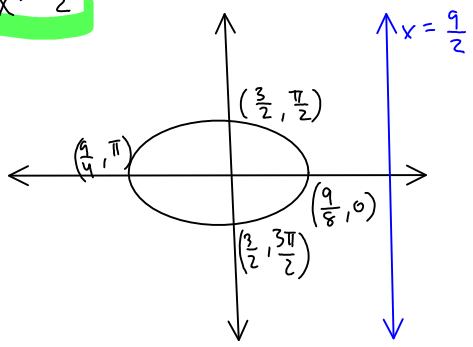
ⓒ $\left(\frac{1}{3}\right)(d) = 3/2$ $d = \frac{9}{2}$ $x = \frac{9}{2}$

ⓓ $\theta = 0$ $r = \frac{9}{8}$

$\theta = \frac{\pi}{2}$ $r = \frac{3}{2}$

$\theta = \pi$ $r = \frac{9}{4}$

$\theta = \frac{3\pi}{2}$ $r = \frac{3}{2}$



⑭ $r = \dfrac{4}{\quad} = \dfrac{4}{\quad}$

$$\frac{2}{2-3\cos\theta} \qquad \frac{2}{2\left(1-\frac{3}{2}\cos\theta\right)}$$

$$r = \frac{2}{1-\frac{3}{2}\cos\theta}$$

(a) $e = \frac{3}{2}$

(b) $\left(\frac{3}{2}\right)(d) = 2 \quad d = \frac{4}{3}$

(b) hyperbola

$x = -\frac{4}{3}$

(d)

θ	r
0	-4
π	4