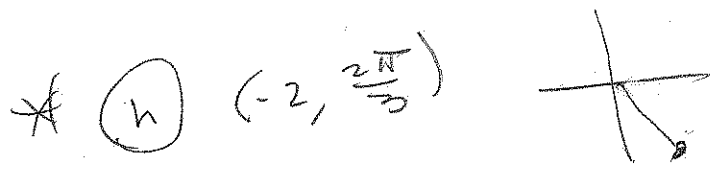
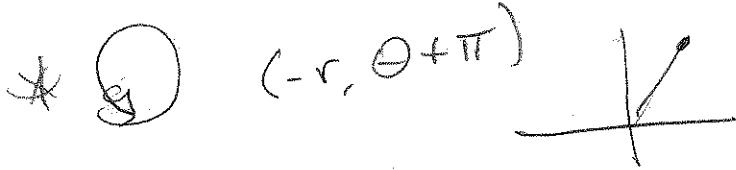
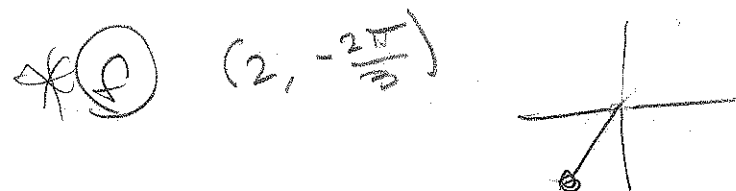
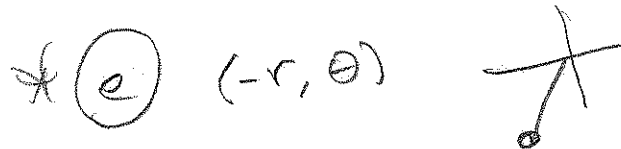
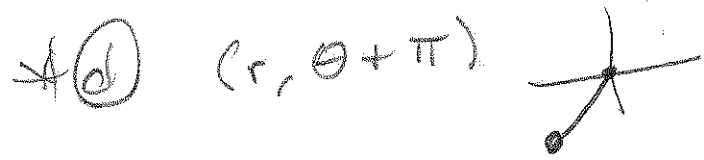
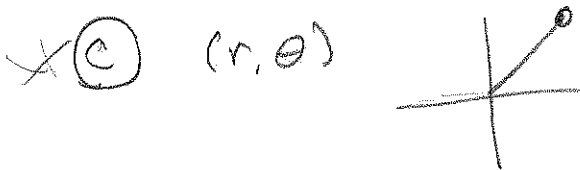
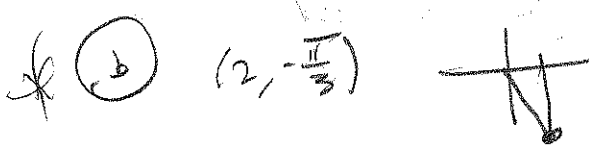
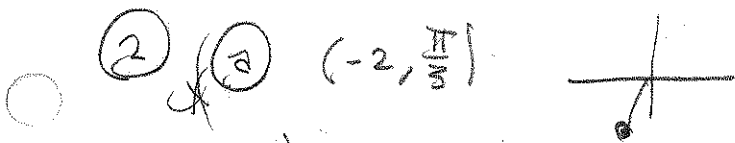


202 8th. 3 #5 2, 6, 8, 14, 18, 26, 36, 40, 46, 66



a, g  
b, h  
d, e  
c, f  
  
are  
the same.

202 § 11.3 #56, 8, 14, 18, 26, 36, 40, 46, 66

6 Find cartesian

(a)  $(\sqrt{2}, \frac{\pi}{4})$



$(1, 1)$

(b)  $(1, 0)$

$(1, 0)$

(c)  $(0, \frac{\pi}{2})$

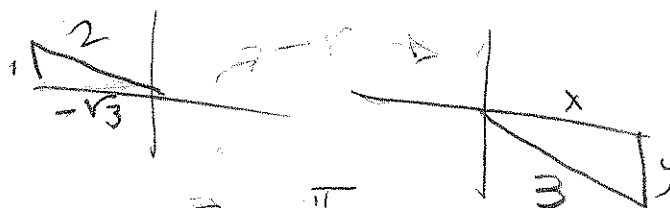
$(0, 0)$

(d)  $(-\sqrt{2}, \frac{3\pi}{4})$



$(-1, -1)$

(e)  $(-3, \frac{5\pi}{6})$



$y = 3 \sin \frac{\pi}{6}$

$x = 3 \cos \frac{\pi}{6}$

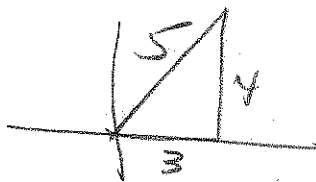
$= -3(\frac{1}{2}) = -\frac{3}{2}$

$= 3(-\frac{\sqrt{3}}{2}) = -\frac{3\sqrt{3}}{2}$

$(x, y) = (\frac{3\sqrt{3}}{2}, -\frac{3}{2})$

(f)  $(5, \tan^{-1}(\frac{4}{3}))$

$(3, 4)$



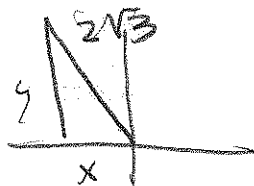
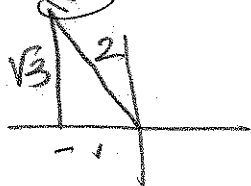
(g)  $(-1, 7\pi) = (-1, \pi) = (1, 0) = (1, 0)!$

(h)  $(2\sqrt{3}, \frac{2\pi}{3})$

$x = 2\sqrt{3}(-\frac{1}{2}) = -\sqrt{3}$

$y = 2\sqrt{3}(\frac{\sqrt{3}}{2}) = 3$

$(-\sqrt{3}, 3)$

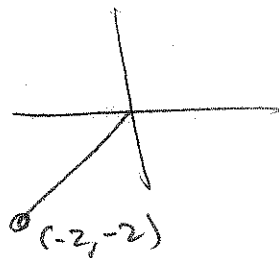


202 §11.3 #5 8, 14, 18, 24, 36, 40, 46, 66

(8) Polars.  $-\pi \leq \theta < \pi$ ,  $r \geq 0$

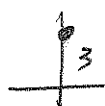
(a)  $(-2, -2)$

$$\begin{aligned} r &= \sqrt{2^2 + 2^2} \\ &= \sqrt{8} \\ &= 2\sqrt{2} \end{aligned}$$



$(2\sqrt{2}, -\frac{3\pi}{4})$

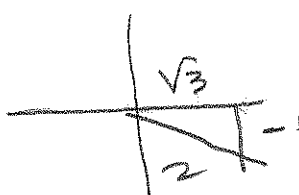
(b)  $(0, 3)$



$(3, \frac{\pi}{2})$

(c)  $(\sqrt{3}, -1)$

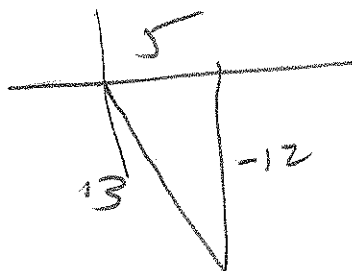
$$\begin{aligned} &\sqrt{(\sqrt{3})^2 + (-1)^2} \\ &= \sqrt{3+1} = 2 \end{aligned}$$



$(2, -\frac{\pi}{6})$

(d)  $(5, -12)$

$$\begin{aligned} &\sqrt{25 + 144} \\ &= \sqrt{169} = 13 \end{aligned}$$



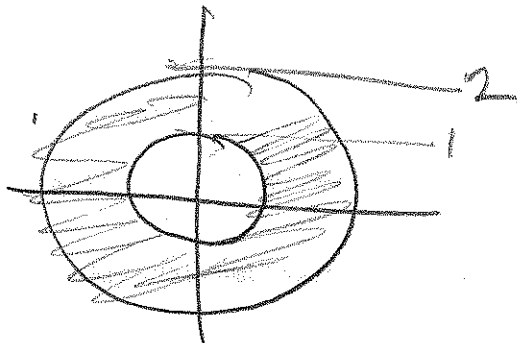
$\arctan(-\frac{12}{5})$

$(13, \frac{\arctan(-\frac{12}{5})}{5})$

Somewhere between  $-\frac{\pi}{2}$  & 0.

AS 11-26 Graph

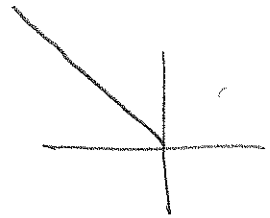
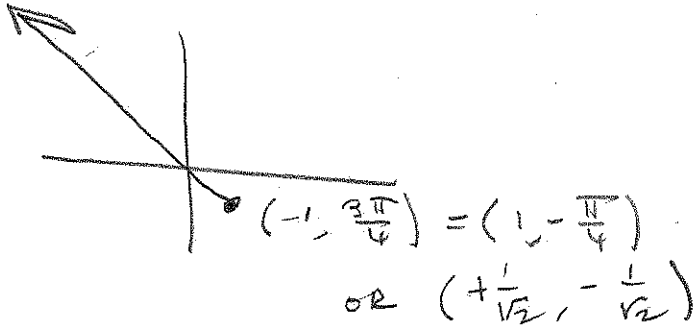
(14)  $1 \leq r \leq 2$



2028 #3 #5 18, 26, 36, 40, 46, 66

(18)  $\theta = \frac{11\pi}{4}, r \geq -1$

$$\frac{11\pi}{4} = 2.75\pi = 2\pi + 0.75\pi = 2\pi + \frac{3\pi}{4}$$

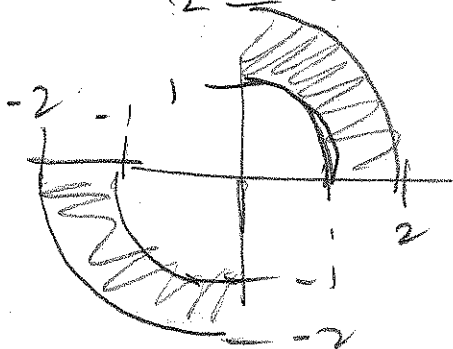
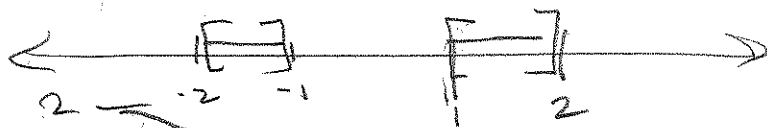
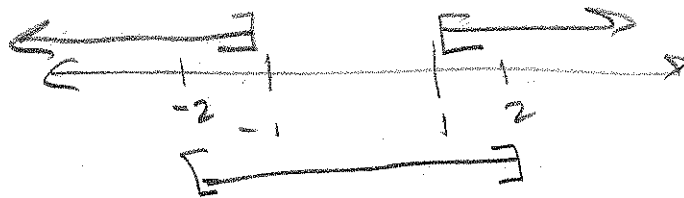


(26)  $0 \leq \theta \leq \frac{\pi}{2}, 1 \leq r \leq 2$

$$|r| \leq 2 \quad |r| \geq 1$$

$$-2 \leq r \leq 2$$

$$[-2, 2] \cap (-\infty, -1] \cup [1, \infty)$$



202 § 11.3 #536, 40, 46, 66

#527-52 Make Cartesian - Describe.

(36)  $r^2 = 4r \sin \theta$

$$x^2 + y^2 = 4(\sqrt{x^2 + y^2}) \left(\frac{y}{r}\right) = 4y$$

$$x^2 + y^2 - 4y + 2^2 = 4$$

$$x + (y-2)^2 = 2^2$$

circle  $r=2$ ,  $(h,k) = (0,2)$

(40)  $r = 4 \sec \theta \tan \theta$

$$r^2 = 4 \frac{r}{x} \cdot \frac{y}{x}$$

$$1 = \frac{4y}{x^2} \Rightarrow x^2 = 4y$$
  
$$y = \frac{1}{4} x^2 \text{ Parabola}$$

(46)  $r^2 = -6r \sin \theta$

$$r = -6 \sin \theta$$

$$r = -6 \frac{y}{r}$$

$$r^2 = -6y$$

$$x^2 + y^2 = -6y$$

$$x^2 + y^2 + 6y + 3^2 = 9$$

$$x^2 + (y+3)^2 = 3^2$$

Hmm.  $\theta \in [0, \pi] \Rightarrow \sin \theta \geq 0$   
 $\Rightarrow r \leq 0$  to keep it positive  
 $\theta \in [\pi, 2\pi], \Rightarrow \sin \theta \leq 0$   
 $\Rightarrow r \geq 0$  to keep it positive.  
This keeps us under the  
y-axis



Semicircle, radius  $r=3$ ,  $(h,k) = (0,-3)$   
Bottom half.

202 § 11.3 #566

#553-66 Find Polar

(66)  $(x+2)^2 + (y-5)^2 = 16$

$$x^2 + 4x + 4 + y^2 - 10y + 25 = 16$$

$$x^2 + y^2 + 4x - 10y = 16 - 29$$

$$x^2 + 4r \cos \theta - 10r \sin \theta = -13$$