

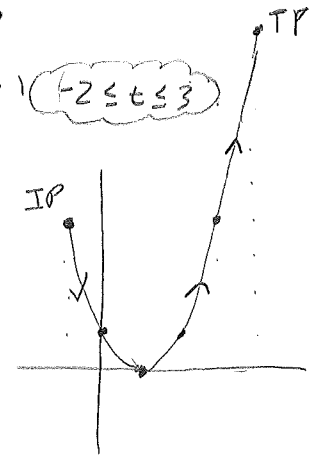
10-#2: p. 704: 1-8 p. 716: a-d, 3, 5, 19, 20  
 p. 725: 1, 2, 3, 27, 30, 33

1. h
2. a
3. e
4. b
5. f
6. g
7. c
8. d

\* add  $at \pm b$

5.  $x = t + 1$   
 $y = t^2$   $-2 \leq t \leq 3$

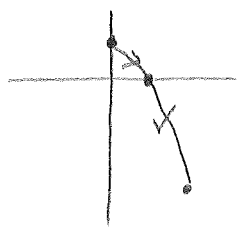
t	x	y
-2	-1	4
-1	0	1
0	1	0
1	2	1
2	3	4
3	4	9



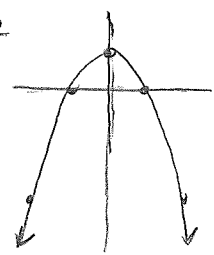
$t = x - 1$   
 $y = (x - 1)^2$

1. a)

t	0	1	2	3	4
x	0	1	$\sqrt{2}$	$\sqrt{3}$	2
y	1	0	-1	-2	-3

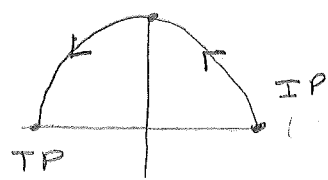


d)  $x = \sqrt{t}$   
 $x^2 = t$   
 $y = 1 - x^2$



19.  $x = 3 \cos \theta$   
 $y = 3 \sin \theta$   $0 \leq \theta \leq \pi$

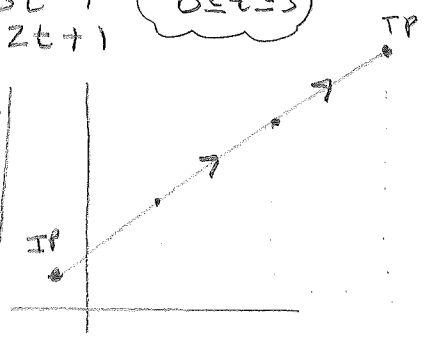
$\theta$	x	y
0	3	0
$\pi/2$	0	3
$\pi$	-3	0



$\sin^2 \theta + \cos^2 \theta = 1$   
 $(\frac{y}{3})^2 + (\frac{x}{3})^2 = 1$   
 $\frac{x^2}{9} + \frac{y^2}{9} = 1$   
 $x^2 + y^2 = 9$

3.  $x = 3t - 1$   
 $y = 2t + 1$   $0 \leq t \leq 3$

t	x	y
0	-1	1
1	2	3
2	5	5
3	8	7

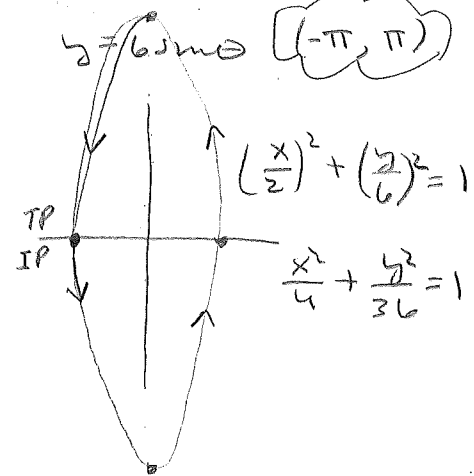


$y - 1 = 2t$   
 $\frac{y-1}{2} = t$

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

20.  $x = 2 \cos \theta$   
 $y = 6 \sin \theta$   $(-\pi, \pi)$

$\theta$	x	y
$-\pi$	-2	0
$-\pi/2$	0	-6
0	2	0
$\pi/2$	0	6
$\pi$	-2	0



$(\frac{x}{2})^2 + (\frac{y}{6})^2 = 1$   
 $\frac{x^2}{4} + \frac{y^2}{36} = 1$

p. 725:

1.  $x = t^2$   
 $y = 5 - 4t$

$\frac{dy}{dx} = \frac{-4}{2t}$   
 $= -\frac{2}{t}$

2.  $x = \sqrt[3]{t}$   
 $y = 4 - t$

$\frac{dy}{dx} = \frac{-1}{\frac{1}{3}t^{-2/3}}$   
 $= 3t^{2/3}$

$$3. \quad x = \sin^2 \theta$$

$$y = \cos^2 \theta$$

$$\frac{dy}{dx} = \frac{2 \cos \theta \cdot (-\sin \theta)}{2 \sin \theta \cos \theta} = -1$$

$$27. \quad x = 1 - t$$

$$y = t^2$$

$$\frac{dy}{dx} = \frac{2t}{-1}$$

Horizontal Tangent

$$2t = 0$$

$$t = 0 \rightarrow (1, 0)$$

Vertical Tangent:

none

$$30. \quad x = t^2 - t + 2$$

$$y = t^3 - 3t$$

$$\frac{dy}{dx} = \frac{3t^2 - 3}{2t - 1}$$

$$\text{HT: } 3t^2 - 3 = 0$$

$$3(t^2 - 1) = 0$$

$$3(t+1)(t-1) = 0$$

$$t = -1 \quad t = 1$$

$$(4, 2) \quad (2, -2)$$

$$\text{VT: } 2t - 1 = 0$$

$$t = 1/2$$

$$x(1/2) = 1.75 = 7/4$$

$$y(1/2) = -1.375 = -11/8$$

$$(7/4, -11/8)$$

$$33. \quad x = 4 + 2 \cos \theta$$

$$y = -1 + \sin \theta$$

$$\frac{dy}{dx} = \frac{\cos \theta}{-2 \sin \theta}$$

$$\text{HT: } \cos \theta = 0$$

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

$$(4, 0) \quad (4, -2)$$

$$\text{VT: } -2 \sin \theta = 0$$

$$\theta = 0, \pi$$

$$(6, -1) \quad (2, -1)$$