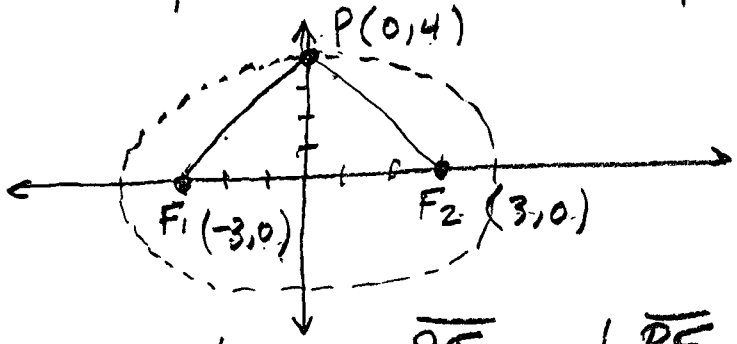
Algebra 2 Wednesday 2-20-13 Class Notes

Ex 1 Pg 830 Find the constant sum for an ellipse with foci $F_1(-3,0)$, $F_2(3,0)$ and a point P on the ellipse $(0,4)$



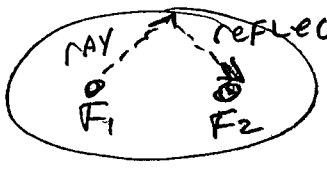
The sum of distance $\overline{PF_1}$ and $\overline{PF_2}$ is constant

$$\text{Sum} = \underbrace{\sqrt{(0+3)^2+(4-0)^2}}_{\overline{PF_1}} + \underbrace{\sqrt{(0-3)^2+(4-0)^2}}_{\overline{PF_2}}$$

$$\text{Sum} = \sqrt{9+16} + \sqrt{9+16}$$

$$\text{sum} = 5 + 5 = \boxed{10}$$

Properties of Ellipses

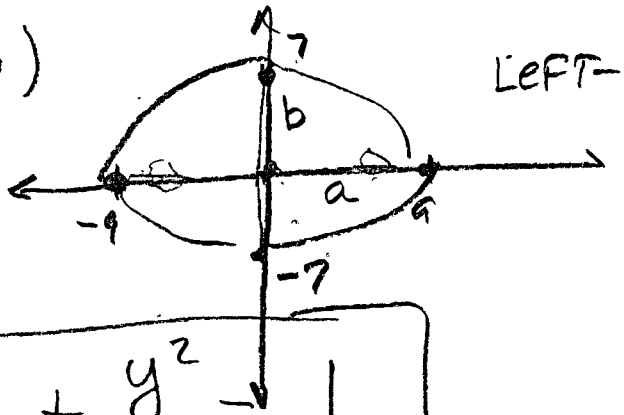


- planetary orbits
- Kindey stone machines (crack with ultrasound)
- listening rooms
- Google it!

Homework Review: Pg 834/5 #4,5,8,10,11,29

(4) Vertex $(-9, 0)$; Co-vertex $(0, 7)$

$C(0,0)$



$$\frac{x^2}{81} + \frac{y^2}{49} = 1$$

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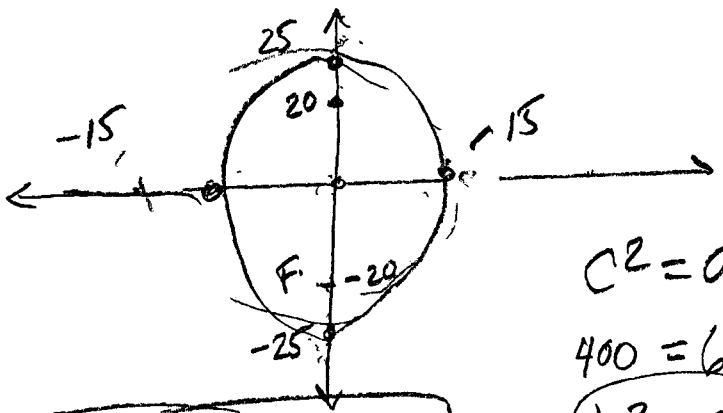
(5) $V(0,25), F(0,-20)$ $C(0,0)$



$c^2 = a^2 - b^2$

$400 = 625 - b^2$

$b^2 = 225$

$b = 15$

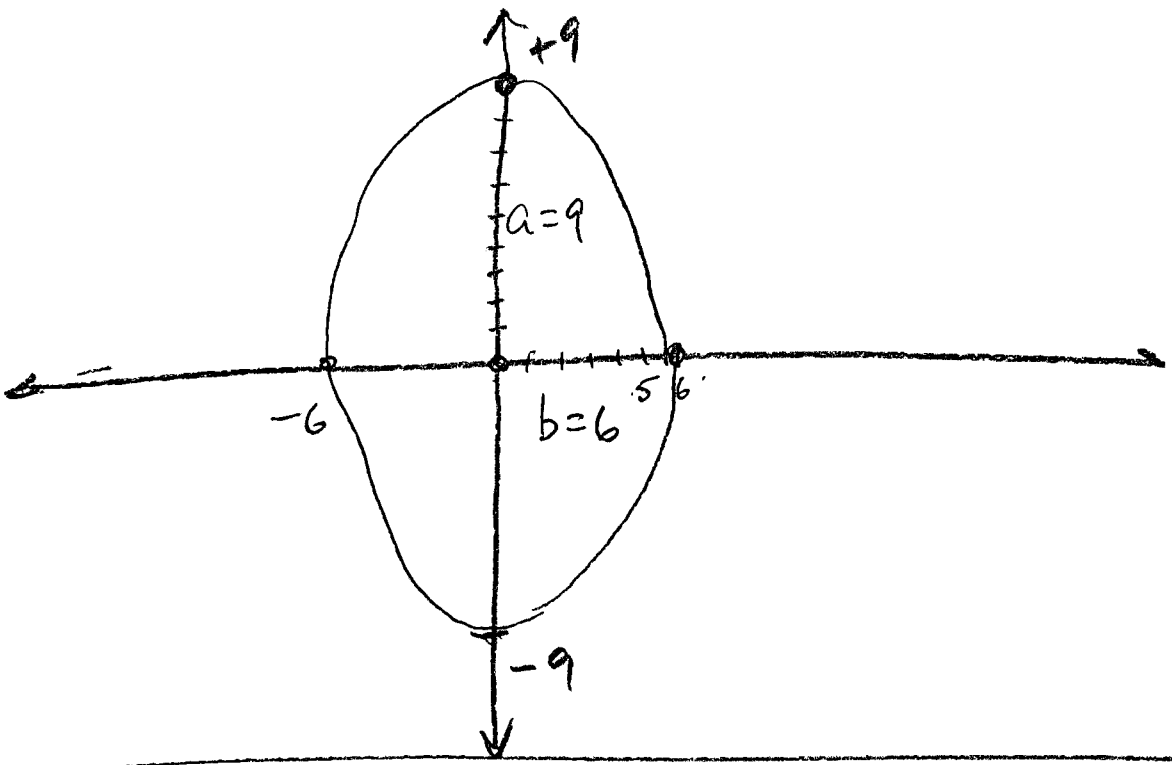
$$\frac{x^2}{225} + \frac{y^2}{625} = 1$$

(8) $\frac{x^2}{36} + \frac{y^2}{81} = 1$

$C(0,0)$

$a = 9$

$b = 6$

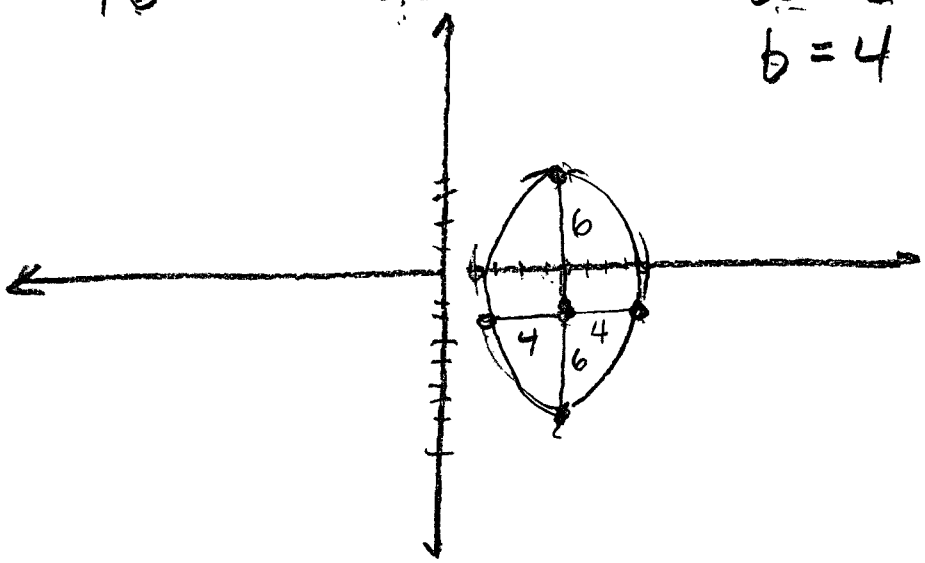


(10) $\frac{(x-5)^2}{16} + \frac{(y+2)^2}{36} = 1$

$C(5,-2)$

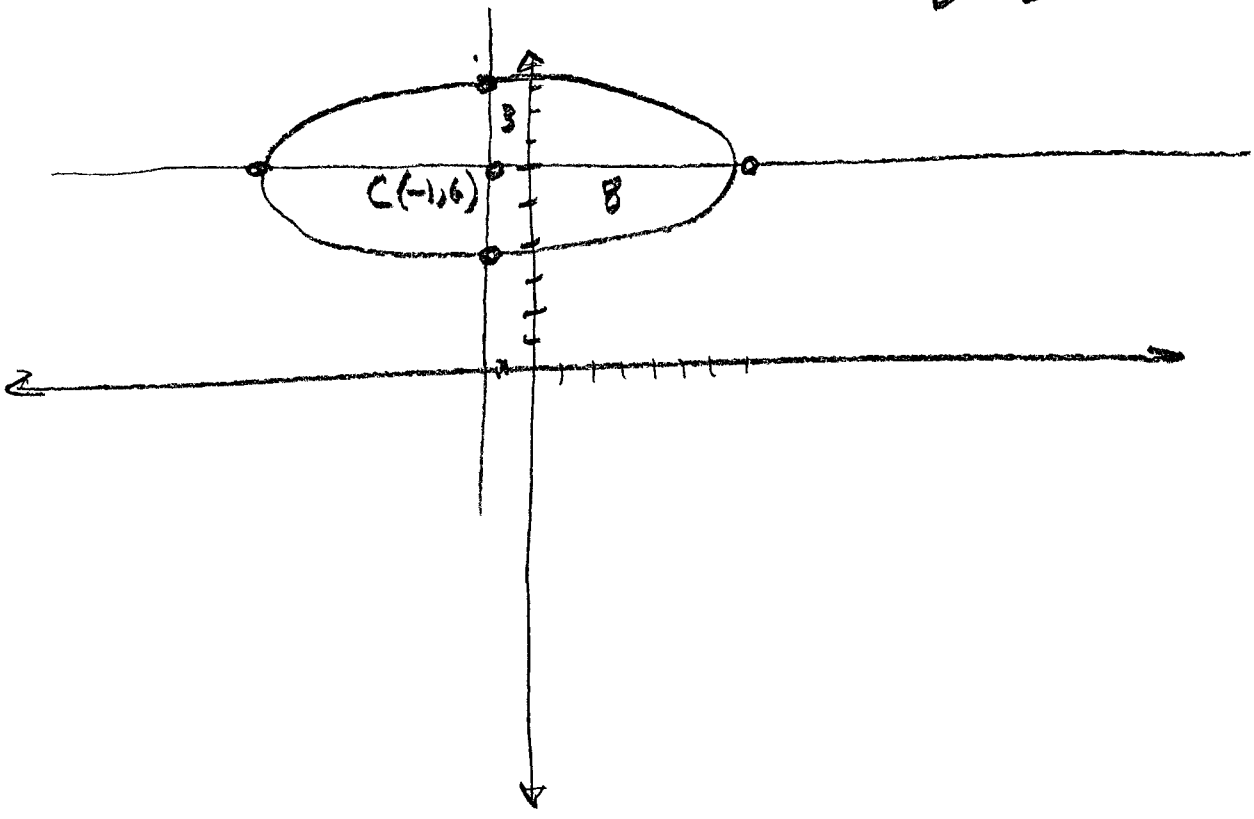
$a = 6 \Rightarrow$  UP/DOWN

$b = 4$

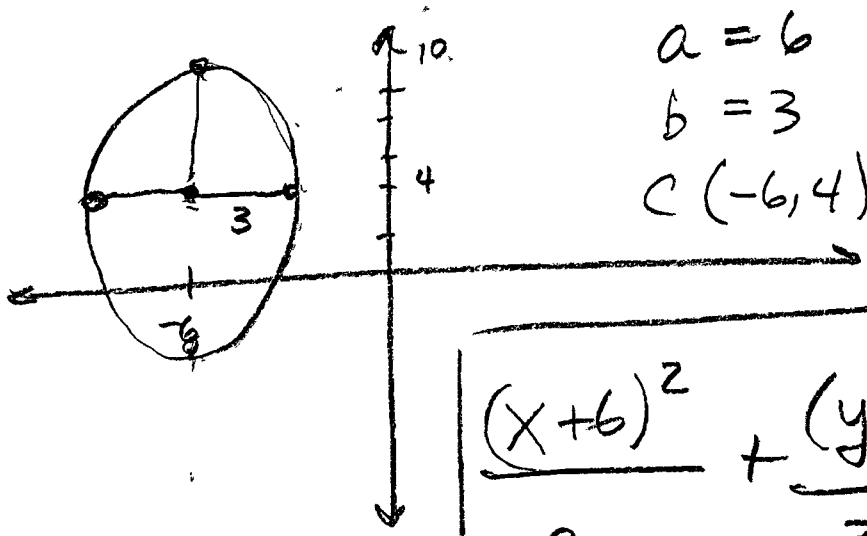


(11) $\dfrac{(x+1)^2}{64} + \dfrac{(y-6)^2}{9} = 1$

$C(-1, 6)$,  LEFT-RIGHT $a = 8$, $b = 3$



29



$a = 6$

$b = 3$

$C(-6, 4)$

$$\frac{(x+6)^2}{9} + \frac{(y-4)^2}{36} = 1$$

(x, y)

(d, r)

$d = -9$ to -3

$r = -2$ to 10

$\{x \mid -9 \le x \le -3\}$

$\{y \mid -2 \le y \le 10\}$

SET NOTATION

$-9 \le x \le -3$

$-2 \le y \le 10$